



LTB00401NAS6

# TECHNICAL BULLETIN

26 MAR 2018

© Jaguar Land Rover North America, LLC

NOTE: The information in Technical Bulletins is intended for use by trained, professional Technicians with the knowledge, tools, and equipment required to do the job properly and safely. It informs these Technicians of conditions that may occur on some vehicles, or provides information that could assist in proper vehicle service. The procedures should not be performed by 'do-it-yourselfers'. If you are not a Retailer, do not assume that a condition described affects your vehicle. Contact an authorized Land Rover service facility to determine whether this bulletin applies to a specific vehicle.

## INFORMATION

This reissue replaces all previous versions. Please destroy all previous versions.

Changes are highlighted in blue

## SECTION:

204-04: Wheels and Tires

## SUBJECT/CONCERN:

Wheel/Tire Balancing and Optimization

## AFFECTED VEHICLE RANGE:

MODEL:	MODEL YEAR:	VIN:	ASSEMBLY PLANT:	APPLICABILITY:
--------	-------------	------	-----------------	----------------

MODEL:	MODEL YEAR:	VIN:	ASSEMBLY PLANT:	APPLICABILITY:
Discovery (LR)	2017 Onwards	000532 Onwards	Solihull	
Range Rover Evoque (LV)	2012 Onwards	000447 Onwards	Halewood	3-Door/5-Door
Range Rover Evoque (LV)	2016 Onwards	091969 Onwards	Halewood	Folding Top
Range Rover Velar (LY)	2018 Onwards	700125 Onwards	Solihull	
Range Rover Sport (LW)	2014 Onwards	000002 Onwards	Solihull	
Range Rover (LG)	2013 Onwards	001204 Onwards	Solihull	
Freelander (LN)	2002-2005	353298-419396	Halewood	
LR2 (LF)	2007-2015	000212-439912	Halewood	
LR3 (LA)	2005-2009	000360-513325	Solihull	
LR4 (LA)	2010-2016	510742-847658	Solihull	
Range Rover Sport (LS)	2006-2013	900129-814822	Solihull	
Range Rover (LM)	2003-2012	101029-393639	Solihull	

## MARKETS:

NORTH AMERICA

## CONDITION SUMMARY:

### SITUATION:

The steering wheel may exhibit a vibration / shimmy while driving.

### CAUSE:

This may be caused by a road wheel/tire assembly imbalance and/or temporary tire flat spotting.





### ACTION:

Should a customer express this concern, follow the information below.

## PARTS:

DESCRIPTION	QUANTITY
Wheel weights - Locally sourced	As required

## TOOLS:

 <p>E192494</p>	Jaguar Land Rover-approved Midtronics battery power supply	 <p>E179225</p>	Jaguar Land Rover-approved diagnostic tool with latest SDD Software Management Pack
 <p>E201918</p>	Inline Diagnostic equipment (IDU) 2	 <p>E201919</p>	Noise, Vibration and Harshness (NVH) Sensor Steering wheel mount

## WARRANTY:

### △ NOTES:

- Repair procedures are under constant review, and therefore times are subject to change; those quoted here must be taken as guidance only. Always refer to JLR claims submission system to obtain the latest repair time.
- The JLR Claims Submission System requires the use of causal part numbers. Labor only claims must show the causal part number with a quantity of zero.

DESCRIPTION	SRO	TIME (HOURS)	CONDITION CODE	CAUSAL PART
10 mile road test - Wheel shimmy/vibration test	74.10.89.40	0.30	42	LR037742
20 mile road test - Wheel shimmy/vibration test	74.10.89.60	0.70	42	LR037742
Road wheel balance - vehicle set - and road test	74.10.89.39	2.2	42	LR037742

**NOTE:**  
Normal Warranty procedures apply.

SERVICE INSTRUCTION 'A':

**1**

**NOTES:**

Factory wheel alignment and wheel balancing are covered for 12 months/12,500 mi (20,000 Km), whichever occurs first, for OEM equipment only. Refer to Warranty Compliance and Procedures Manual for further information.

No claim should be submitted with reference to this Technical Bulletin where wheel shimmy was identified and rectified during the normal length Pre-Delivery Inspection (PDI) road test.

Until flat spots are removed, significant wheel vibration/shimmy/vehicle vibration may be present, even if the car has only stood overnight. A test drive is required to ensure temporary tire flat spots are removed. For longer term flat spots, a longer drive may be required. The test drive should be carried out on normal open roads to allow the highest speed that speed limits and road / traffic conditions allow.

All road tests must be performed with tire pressures at 29psi / 2.0bar / 200kPa.

If the vehicle has experienced a steering wheel vibration / shimmy during the Pre-Delivery Inspection (PDI) road test, refer to Technical Bulletin LTB00466NAS. If after performing the Service Instruction therein the concern is still evident, go to the Diagnostic Procedure below.

## SERVICE INFORMATION:

 NOTE:

The table below lists all vehicles applicable to the diagnostic procedure. For vehicles listed in the table, go to Step 1 below. For vehicles not listed in the table, continue to 'Service Instruction B'.

MODEL	MODEL YEAR (MY)
Discovery Sport (L550)	2015-17MY
Range Rover Evoque - Folding top (L538c)	2016MY
Range Rover Evoque - (L538)	2016-17MY
Range Rover Sport (L494)	2014-16MY
Range Rover (L405)	201316MY

1



## Testing complete

Front wheel imbalance detected. Check for imbalance on the front wheels. Refer to: LTB00633v4



Exit test

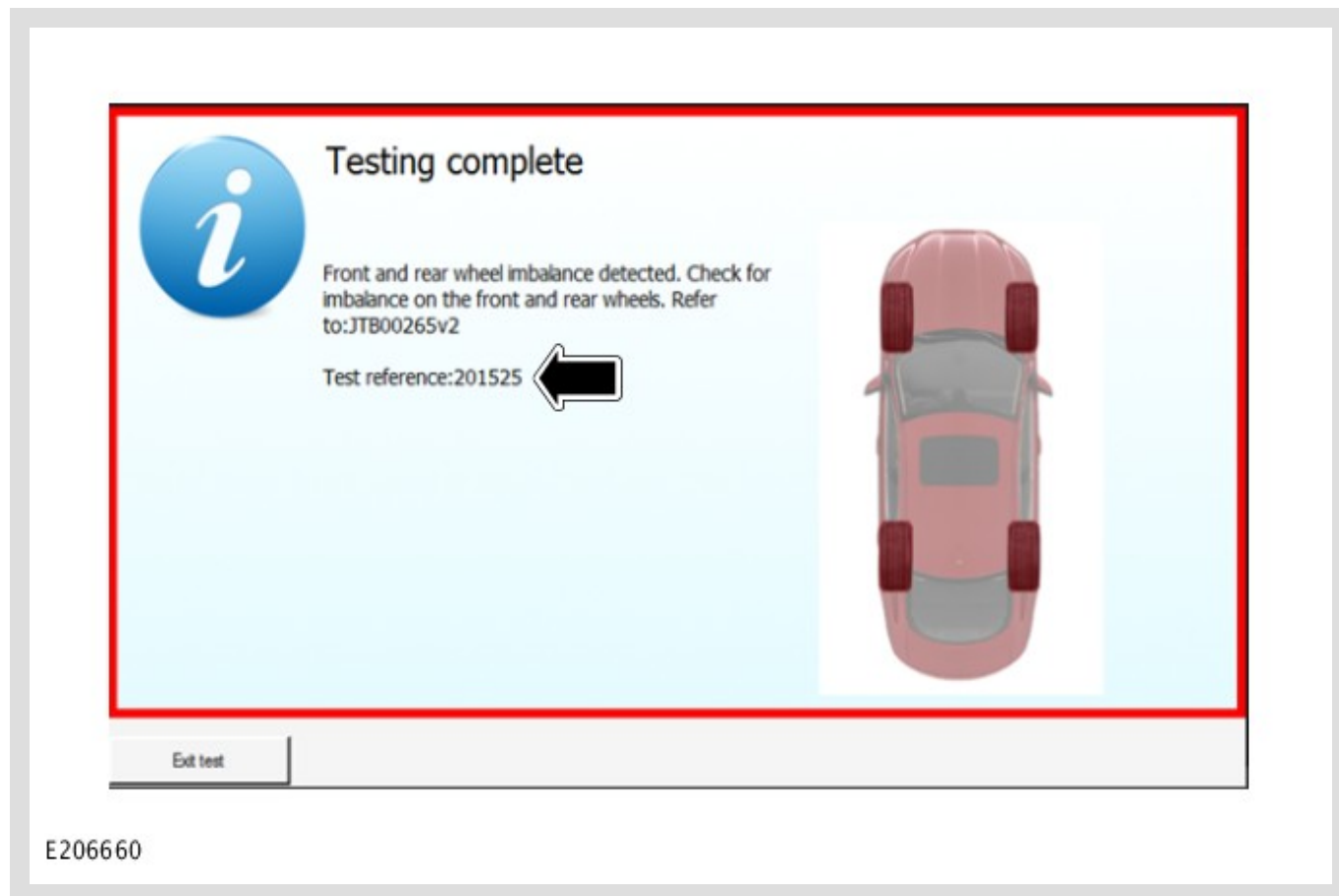
E203318

The illustration shows an example of front wheel and tire assembly imbalance. On completion of the diagnostic procedure below, the test results will identify if there is front, rear, front and rear, or no wheel imbalance detected.

2

**NOTE:**

This information must be added to the retailer verbatim of the claim, otherwise the claim will be rejected.



Record the test reference number produced at the end of the diagnostic test in the warranty claim submission.

**DIAGNOSTIC PROCEDURE: SDD**

**This Diagnostic Procedure is only for vehicles requiring the Jaguar Land Rover-approved diagnostic tool with Symptom Driven Diagnostics (SDD).**

**ⓘ CAUTIONS:**

- A Jaguar Land Rover-approved Midtronics battery power supply must be connected to the vehicle startup battery during diagnosis / module programming.
- All ignition ON/OFF requests must be carried out. Failure to perform these steps may cause damage to control modules in the vehicle.

1 Connect the Jaguar Land Rover-approved Midtronics battery power supply to the vehicle startup battery.

**2** **△ NOTE:**

The Jaguar Land Rover-approved diagnostic tool must be loaded with SDD152.05 Software Management Pack v290 (or later).

Connect the Jaguar Land Rover-approved diagnostic tool to the vehicle and begin a new session.

3 Follow all on-screen instructions, allowing the diagnostic tool to read the VIN, identify the vehicle, and initiating the data collect sequence.

4 If the hyperlink is not available:

- 1 Select **Diagnosis** from the Session Type screen.
- 2 Select the **Selected Symptoms** tab.
- 3 Select **Chassis - Steering system - Steering system symptoms**
- 4 Select **continue**.
- 5 Select the **Recommendations** tab.
- 6 Select **Run** to perform the '**Special applications - Inline diagnostic unit 2 noise vibration and harshness diagnostic test - Wheel imbalance**' option.

5 Disconnect the battery power supply.

6 If a road test was completed during the Diagnostic Procedure, go to Step 7.

- If a road test was not completed during the diagnostic procedure, go to Step 8.

## 7 Assess the level of wheel vibration/shimmy.

- If the amount of wheel vibration/shimmy is acceptable after the Diagnostic Procedure road test, go to Step 11; do not continue with this Technical Bulletin.
  - Return the vehicle to the customer with a full explanation of the situation/flat spot scenario and how it can/does affect the drive of the vehicle until the wheels and tires reach normal operating temperature.
- If the amount of wheel vibration/shimmy is unacceptable, go to Step 9.

## 8 NOTE:

Only complete this step if a road test was not completed during the diagnostic procedure.

Road test the vehicle a minimum of 16 Km (10 mi).

### 1 Assess the level of wheel vibration/shimmy.

- If the amount of wheel vibration/shimmy is acceptable after the Diagnostic Procedure road test, go to Step 11; do not continue with this Technical Bulletin.
  - Return the vehicle to the customer with a full explanation of the situation/flat spot scenario and how it can/does affect the drive of the vehicle until the wheels and tires reach normal operating temperature.
- If the amount of wheel vibration/shimmy is unacceptable, go to Step 9.

## 9 Road test the vehicle a minimum of 16 Km (10 mi) to confirm if the wheel vibration/shimmy is caused by flat spotted tires or incorrectly balanced wheel and tire assemblies.

## 10 If the wheel vibration/shimmy is caused by flat spotted tires or incorrectly balanced wheel and tire assemblies, perform to Steps 11-12 then go to Step 3 of 'Service Instruction B'.

## 11 Exit the current session.

- 1 Select the **Session** tab.



## 2 Select the **Close Session** option.

12 Disconnect the diagnostic tool from the vehicle.

### SERVICE INSTRUCTION 'B':

1 Road test the vehicle a minimum of 16 Km (10 mi).

1 Assess the level of wheel vibration/shimmy.

- If the amount of wheel vibration/shimmy is acceptable after the Diagnostic Procedure road test, do not continue with this Technical Bulletin.
  - Return the vehicle to the customer with a full explanation of the situation/flat spot scenario and how it can/does affect the drive of the vehicle until the wheels and tires reach normal operating temperature.
- If the amount of wheel vibration/shimmy is unacceptable, go to Step 2.

2 Road test the vehicle a minimum of 16 Km (10 mi) to confirm if the wheel vibration/shimmy is caused by flat spotted tires or incorrectly balanced wheel and tire assemblies.

- If the wheel vibration/shimmy is caused by flat spotted tires or incorrectly balanced wheel and tire assemblies, go to Step 3.

3 Adjust tire pressures to the recommended (cold) settings.

4 Road test the vehicle for approximately 8 Km (5 mi) at speeds up to approximately 80 Km/h (50 mph [if possible]).

- If the amount of wheel vibration/shimmy is acceptable, do not continue with this Technical Bulletin.
  - Return the vehicle to the customer with a full explanation of the situation/flat spot scenario and how it can/does affect the drive of the vehicle until the wheels and tires reach normal operating temperature.

- If the amount of wheel vibration/shimmy is unacceptable, raise and support the vehicle immediately upon returning to the workshop (see TOPIx Workshop Manual section 100-02: Jacking and Lifting).

---

**5** Remove all four road wheel and tire assemblies (see TOPIx Workshop Manual section 204-04: Wheels and Tires).

---

**6** Adjust the tire pressures to 36psi / 2.5bar / 250kPa.

**1** Balance each wheel and tire assembly until the residual imbalance dynamic is minimized.

- Target is 0g (zero grams) on each plane; maximum is inner 5g / outer 5g.
- Use the 'bulls-eye' balancing mode to minimize residual imbalance.

---

**7** The maximum Radial Force Variation (RFV) values should be as follows:

- 60N (6.1kg, 13.5lbf) First Harmonic
- 100N (10.2kg, 22.5lbf) Peak to Peak

---

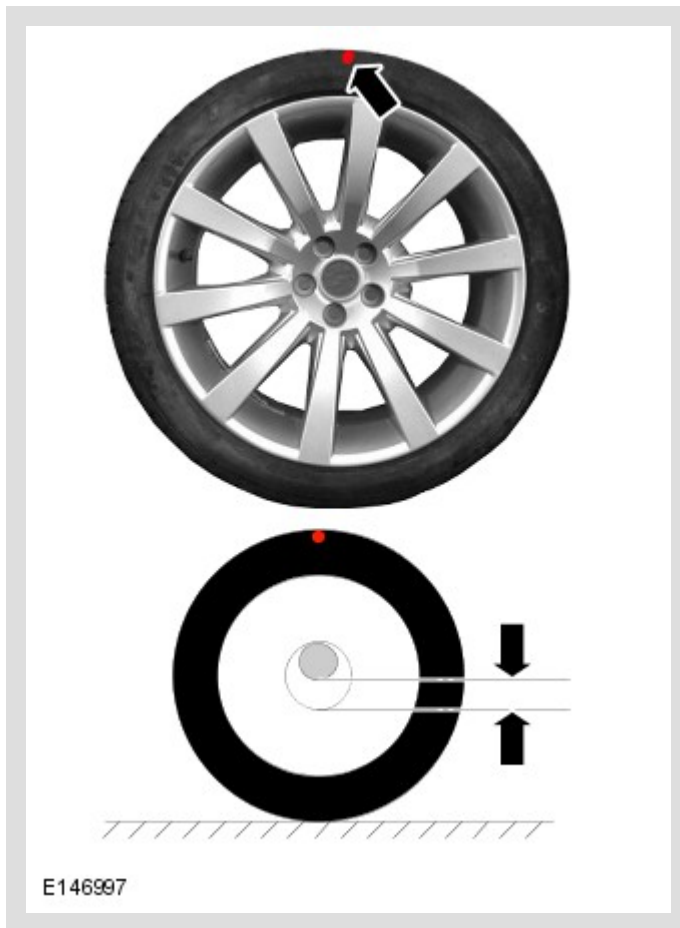
**8**  **NOTE:**

If the RFV equipment is not available and the tire has not been removed from the wheel and the RFV spot (red dot) is still visible, this should be installed at the top.

If these levels cannot be achieved, perform the following:

- 1** Remove the tire.
- 2** Follow the match mounting procedure as detailed by the wheel balance machine.
- 3** Mark the high point of the 1st harmonic RFV on the outer (and inner for future reference) sidewall of the tire.
- 4** On vehicles installed with electric power steering: Install the lowest 1st harmonic RFV wheel/tire assemblies to the rear axle. On vehicles installed with hydraulic power steering: Install the lowest 1st harmonic RFV wheel/tire assemblies to the front axle.
- 5** Print out the results of the balance and force variation (before and after), and attach to the repair order.

9



Prior to tightening the wheel nuts, the high-point of RFV should be marked and the road wheel and tire assembly installed to the vehicle with the RFV high point at the top.

10

**NOTE:**

Nothing should be used to brace the wheel while tightening the nuts as this can disturb the match mounting.

Install all four wheel and tire assemblies (see TOPIx Workshop Manual section 204-04: Wheels and Tires).

- Adjust tire pressures to recommended (cold) settings.

11

Drive the vehicle for 7 Km (5 mi) on normal roads up to speeds of approximately 80 km/h (50 mph) to verify the wheel vibration/shimmy has been rectified.

12

Return the vehicle to the customer with a full explanation of the situation/flat spot scenario, and how it can/does affect driving the vehicle until the wheel and tire reaches normal

operating temperature.