

TECHNICAL BULLETIN

No: LTB00401 (ISSUE 1)
30 AUG 2011

RANGE ROVER



CIRCULATE TO: SERVICE ✓ PARTS ✓ WARRANTY ✓ BODY SHOP

THIS BULLETIN REPLACES LA204-006 AND LM204-007; CHANGES ARE NOT HIGHLIGHTED

SECTION: 204

Tire / Wheel Balancing and Optimization

AFFECTED VEHICLE:

Freelander (LN)	VIN: 2A353298 - 5A491396 Model Year: 2002 - 2005
LR2 (LF)	VIN: 8H000212 - Onwards Model Year: 2007 - Onwards
LR3 (LA)	VIN: 5A000360 - 9A513325 Model Year: 2005-2009
LR4 (LA)	VIN: AA510742 - Onwards Model Year: 2010 - Onwards
Range Rover Sport (LS)	VIN: 6A900290 - Onwards Model Year: 2006 - Onwards
Range Rover (LM)	VIN: 3A101029 - Onwards Model Year: 2003 - Onwards

CONDITION SUMMARY:

Situation: The steering wheel may exhibit a vibration / shimmy while driving. This may be caused by a road wheel / tire assembly imbalance and / or temporary tire flat-spotting.

Action: In the event of a customer concern of steering wheel vibration / shimmy, refer to the procedure outlined below to balance and optimize the tire / wheel assemblies and identify tires which may have a temporary flat-spot condition.

PARTS:

Wheel weightslocally sourced Qty: as required

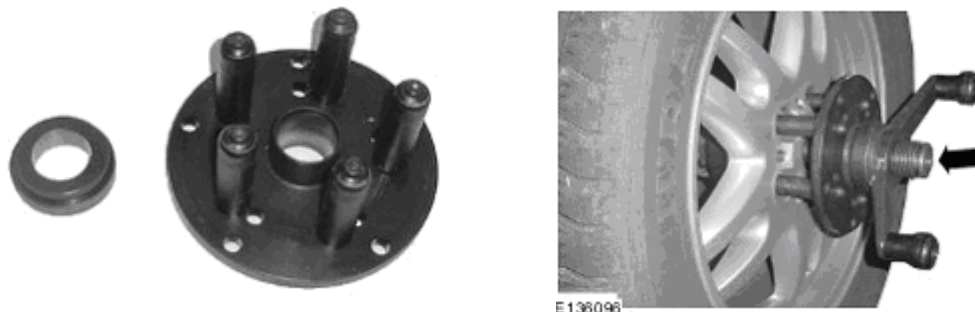
TOOLS:

Hunter 9700 / 9712 wheel balance machine



NOTE: To ensure that the road wheel / tire assembly is balanced correctly, Land Rover recommends the use of the Haweka 9700 hub-to-wheel five-fingered clamp to support the road wheel / tire assembly on the balance machine. (Figure 1)

Figure 1



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.

WARRANTY:



NOTE: 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 DDW to obtain the latest repair time.



NOTE: Factory wheel alignment and wheel balancing are covered for 12 months / 12,500 miles, (20,000 km) whichever occurs first, for OEM equipment only. Refer to Warranty Policies & Procedures manual for further information.

DDW 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
Steering wheel vibration / steering shimmy	74.10.89.39	2.20	D9	RTB500220

Normal Warranty policies and procedures apply

REPAIR PROCEDURE

VERIFY CUSTOMER CONCERN



NOTE: Step 1 of the procedure is part of the initial vehicle preparation process. No claim should be initiated if the performance of this step at initial vehicle preparation resolves the concern.



NOTE: Until flat-spots are removed, significant shimmy 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.

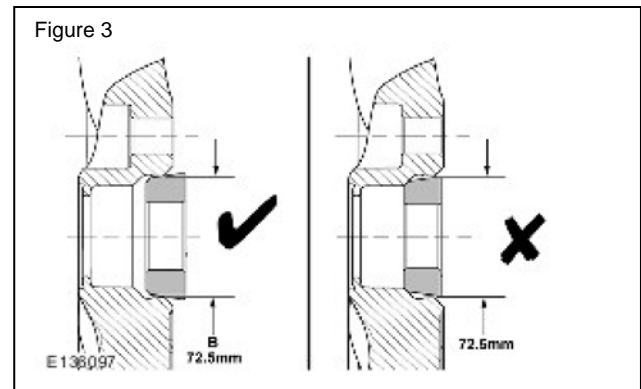
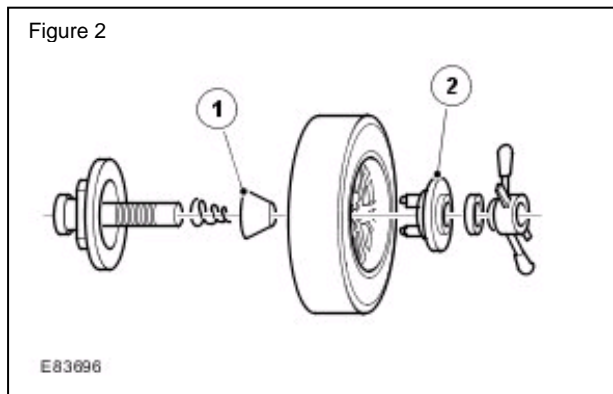
1. If the vehicle is undergoing initial vehicle preparation, perform the following as part of the test drive:
 - Refer to the tire pressure label and adjust the tire pressures to the recommended cold tire pressures.
 - Drive the vehicle a minimum of 10 miles (15km) before attempting to assess shimmy.
 - Assess the level of wheel vibration.
2. If a customer complaint is being resolved, perform the following:
 - Refer to the tire pressure label and adjust the tire pressures to the recommended cold tire pressures.
 - Drive the vehicle for a minimum of 10 miles (15km) before attempting to assess shimmy.
 - Assess the level of wheel vibration.
3. If the level of steering vibration is considered acceptable, no further action is required.
4. If the levels of vibration remain unacceptable, refer to 'BALANCE WHEELS AS REQUIRED' below.

BALANCE WHEELS AS REQUIRED

1. Refer to Workshop Manual, section 100-02: *Jacking and Lifting*, and raise the vehicle immediately upon returning to the workshop to avoid inducing further tire flat spots.
2. Remove all four road wheel / tire assemblies for balancing.

NOTE: For adhesive weights, use the attachment arm on the Hunter machine to ensure accurate weight positioning.

3. Refer to Figures 2 and 3 for correct wheel fitting attachment to the balance machine and balance road wheel and tire assemblies 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.



4. The maximum tire road force variations (RFV) for each road wheel / tire assembly should be **60 Newton (6.1 kgf / 13.4 lbf)** first harmonic RFV, **100 Newton (10.2 kgf / 22.5 lbf)** peak-to-peak.
5. If these levels cannot be achieved, perform the following:
 - Remove the tire.
 - Follow the match mounting procedure as detailed by the Hunter machine.
 - Mark the high point of 1st harmonic RFV on the outer (and inner for future reference) sidewall of the tire.
 - Install the lowest 1st harmonic RFV wheel / tire assemblies to the front axle.
 - Print out the results of balance and force variation (before and after); attach to repair order.

NOTE: If 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.

6. Prior to tightening the wheel nuts, the high-point of RFV should be marked and the road wheel / tire assembly installed to the vehicle with the RFV high point at the top. (Figure 4)





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

7. Install all four road wheel / tire assemblies.
8. Tighten wheel nuts to the specified torque.
9. Lower the vehicle.
10. Drive the vehicle for approximately 5 miles (7km) on normal roads and up to speeds of approximately 50 mph (80kph) to verify correction of steering vibration.