

## TRUCK, LIGHTWEIGHT AND TRUCK, LIGHT - ALL TYPES - LAND ROVER 110 4X4 AND 6X6

### WHEEL BALANCING

## MISCELLANEOUS INSTRUCTION

This instruction is authorised for use by command of the Chief of Army. It provides direction, mandatory controls and procedures for the operation, maintenance and support of equipment. Personnel are to carry out any action required by this instruction in accordance with EMEI General A 001.

### GENERAL

#### Introduction

1. This instruction clarifies the requirements for the balancing of wheel assemblies on the ADF Land Rover 110 family of vehicles. It is applicable to Land Rover vehicles having standard one-piece wheel rims and vehicles having split wheel rims.

#### Associated Publications

2. Reference may be necessary to the latest issue of the following documents:
- a. [EMEI Vehicle A 291](#) Pneumatic Tyres, Tyre and Rim Technology;
  - b. [EMEI Vehicle A 291-1](#) Pneumatic Tyres, Care and Maintenance – B Vehicles;
  - c. [EMEI Vehicle A 291-5](#) Tyres and Tubes, Australian Defence Force B Vehicle Tyre Guide – Operator Instructions;
  - d. [EMEI Vehicle G 109](#) Truck, Lightweight, MC2, Land Rover 110 4x4 All Types – Servicing Instruction;
  - e. [EMEI Vehicle G 139](#) Truck, Surveillance, Lightweight, Winch, MC2 - Land Rover 110 4x4 – Servicing Instruction;
  - f. [EMEI Vehicle G 209](#) Truck, Cargo, Light, MC2 - Land Rover 110 6x6 All Types – Servicing Instruction;
  - g. [EMEI Vehicle G 239](#) Truck, Long Range Patrol, Light, Winch, MC2 - Land Rover 110 6x6 – Servicing Instruction;
  - h. [EMEI Vehicle G 103](#) Truck, Utility, Lightweight, MC2 – Land Rover 110 and Truck, Utility, Lightweight, W/Winch, MC2 - Land Rover 110 – Light Grade Repair; and
  - i. [EMEI Vehicle G 203](#) Truck, Cargo, Light, MC2 – Land Rover 110 6x6 and Truck, Cargo, Light, Winch, MC2 - Land Rover 110 6x6 – Light Grade Repair.

#### Application

3. Balancing of wheel assemblies will help reduce tyre wear, suspension and steering component wear and improve vehicle ride comfort by reducing vibration. Refer to Para 2.a. for further information on wheel balancing.

#### Authority

4. Authority to conduct balancing of wheel assemblies for the ADF Land Rover 110 family of vehicles with the correct equipment and trained personnel is as follows:
- a. owner units i.e. units with organic RAEME support;
  - b. RAEME units and Joint Logistic Units (JLU) to conduct Light, Medium, and Heavy Grades of Repair; and
  - c. external agencies facilitated through a JLU.

5. Units without wheel balancing equipment are to request support through their next higher maintenance agency. There is no requirement for these units to acquire wheel balancing equipment for Land Rover 110 series vehicles.

### **ACTION REQUIRED**

6. Balancing of wheel assemblies, for the ADF Land Rover 110 family of vehicles will be beneficial; however, balancing is not considered essential for vehicle safety and effective operation provided that the requirements and recommendations in this instruction are observed.

7. Wheel balancing will provide limited benefits for vehicles that operate mainly in off-road environments. Tyre and component wear caused by poorly balanced wheels is likely to be a secondary effect in an off-road environment. Additionally, the difficulty of maintaining proper wheel balance on such vehicles is recognised, hence balancing is not considered necessary. However, vehicles that operate mainly on sealed or smooth roads, particularly highway driving, will benefit and wheel balancing would be worthwhile and therefore recommended. Unit commanders should therefore consider the likely types of vehicle operating environment in order to determine the need for wheel balancing.

### **Operation**

8. Poorly balanced wheel assemblies may adversely affect vehicle braking and handling. This will be evident from significant steering wheel “wobble” and / or wheel vibration. Such faults should be rectified at the earliest opportunity by either of the following:

- a. balancing vehicle wheel assemblies,
- b. swapping for wheels that have been balanced, or
- c. rotation of wheels from the front of the vehicle to the rear.

9. Vehicle operators and maintainers should be observant of tyre wear as well as steering and suspension component wear. Uneven tyre wear patterns and excessive component wear may be caused by poorly balanced wheels. Suspected faults are to be investigated and rectified.

### **Replacement**

10. Balance weights previously attached to the wheel rim should be removed when tyre replacement is required when correct wheel balancing equipment is not available i.e. in a field environment. Leaving the previous balance weights attached could result in a poorer balance condition than having no weights fitted. Upon return of the vehicle to the unit and if considered appropriate, the wheel should be sent to a facility having a Defence approved wheel balancing capability or replaced with a balanced wheel assembly.

**END**

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