

Case Study

Vibration: Hitting a pothole in a passenger transport vehicle while travelling at high speeds (McPhee, 2001)

Issue: While travelling in a passenger transport vehicle, one-off jolts occur without warning and all personnel (especially those in the back seat) are unprepared.

Task Analysis

The management and staff were consulted and their main issues noted.

Issues and observations included:

- Speed of travel accentuates impact
- Less skilled or inexperienced drivers may be less able to avoid rough patches
- Vehicles such as troop carriers where passengers are sitting sideways are used, and passengers are unable to brace themselves
- Seats do not have suspension and sitting behind the rear axle can be particularly rough
- Ride is roughest when there are few passengers
- Equipment suspension deteriorates quickly in rough conditions and requires overhaul at around 40,000km.
- Difficult to measure one-off severe jolts as they occur infrequently.

Model Recommendations

The proposed solutions included:

1. Ensure vehicle suspension is effective and appropriate for the type of vehicle and its function
2. Appropriate vehicle and suspension maintenance programme
3. Ensure passenger seats face forward and are properly designed to provide support and shock absorption
4. Provide adequate roadway lighting at night or in bad weather
5. Ensure that vehicle has appropriate tyres and tyre pressure.