Tasmania

Fact Sheet

Introduction of LAMS (Learner Approved Motorcycle Scheme)

Power to Weight Ratio for Motorcycles

What is LAMS (Learner Approved Motorcycle Scheme) and what does power to weight ratio mean?

- The Learner Approved Motorcycle Scheme (LAMS) is an initiative that identifies motorcycles that are considered suitable for motorcycle learners and for all riders in their first year after progressing from a motorcycle learner licence. It is aimed at improving the safety of motorcycle riders. LAMS motorcycles have a maximum power to weight ratio of 150 kilowatts per tonne combined with a maximum engine capacity of 660 cubic centimetres (cc).
- The power to weight ratio of a motorcycle is a measure of performance that refers to the ratio of the power output of the motorcycle compared to its weight. It is a better indicator of motorcycle performance than engine capacity alone.

Why use power to weight ratio to measure performance?

- Historically, engine capacity measured in cubic centimetres has been used to describe the size and power of a motorcycle. This is now recognised as no longer being an efficient means of measuring a motorcycle's performance.
- Advances in technology in recent years has resulted in high-performance motorcycles capable of high speed and rapid acceleration that have a relatively low engine capacity.
- While engine capacity provides an indication of the size and power of a motorcycle, power to weight ratio provides a better measure of a motorcycle's potential performance, for example, its speed and acceleration capability.

How is power to weight ratio calculated?

- The power output (kilowatts) is divided by the tare weight of the motorcycle + 90kg (for rider and fuel). The result is then multiplied by 1000 (to convert to kW per tonne), i.e.

$$\frac{\text{Engine power (kW)}}{\text{Tare weight (ie mass of motorcycle in kg) + 90kg (80kg rider weight + 10kg for fuel)}} \times 1000$$

- The manufacturer determines the engine power and tare weight of the motorcycle.
- 90kg is the laden weight used in Australian Design Rule ADR 33 "Brake Systems for Motor Cycles and Mopeds".

The relationship of power to weight ratio and road safety

- High-powered motorcycles present a s afety risk to learners and inexperienced motorcycle riders.
- Learners and inexperienced motorcycle riders need to ride less powerful motorcycles while they are learning and until they gain sufficient skills and experience to handle more powerful motorcycles.
- Various Australian jurisdictions, including Tasmania, have previously addressed this safety issue by limiting the engine capacity of motorcycles available to learners and provisional riders. Prior to 1 J uly 2007, Tasmania had a maximum 250cc engine capacity restriction for motorcycle learners and for all riders in their first year after progressing from a motorcycle learner licence.
- Advances in technology made restrictions based on engine capacity alone ineffective as a safety measure. For example, motorcycles such as 250cc two-stroke 'race replicas', produce a large power output compared to their relative low weight and are therefore a safety risk to learners and inexperienced riders.

How is power to weight ratio and engine capacity restrictions managed in Tasmania?

- The Roads and Maritime Services (RMS) in NSW administer the national Learner Approved Motorcycles Scheme (LAMS) List. All motorcycles that conform to the power to weight specifications are included on the list. This list is updated as new motorcycles enter the market and are assessed by the RMS for suitability.
- A learner and first year provisional rider can only ride motorcycles that are included on the LAMS list. There are no exceptions and/or exemptions.
- For further information go to www.rms.nsw.gov.au/documents/roads/licence/approved-motorcycles-for-novice-riders.pdf