Release of Exhaust Noise Emissions Standard

Background

New Zealand has always had regulations regarding noise levels for new entry vehicles, but because they have been based on drive-by testing rather than stationary testing, it hasn't been practical to enforce those requirements for any vehicles other than those built by new vehicle manufacturers. The old requirements have been for a maximum of 81 dB (drive-by).

After a couple of years of being aware of the government's intention of introducing exhaust noise testing of some sort, and working with them in the hope of avoiding an outcome that isn't unreasonably harsh on owners of vehicles with 'sports' or 'performance' exhausts, step one of the job is done.

LVVTA engaged to implement objective noise testing regime

The Ministry of Transport have established some basic noise-testing principles they want to see in place, and this year have asked Land Transport New Zealand to oversee the implementation of an objective noise testing system. Land Transport NZ in turn has engaged LVVTA to carry out the implementation of the objective noise-testing regime. LVVTA has selected and appointed the testers (known as ONT-authorised LVV certifiers), developed the LVV Standard (based around an international standard called ISO 5130 but with variations and tolerances to suit our New Zealand fleet and conditions), helped LTNZ to select the equipment, and developed all of the various associated documents including the inspection form-set, test certificate, adhesive approval labels, and so on.

Establishment of decibel limits

The difference in figures between a drive-by and a stationary test is generally considered to be around 15 dBA, so roughly, an 81 dB drive-by figure (old NZ legislation) equates to around 96dB stationary, and therefore the figure of 95 dB is what the Ministry of Transport decided that the new requirements for objective noise testing starting this month will be based on. Motorcycles over 125 cc are 100 dB.

This is a very simplistic approach, and in LVVTA's view isn't the whole answer, however there's time to learn and improve the process before the next step is taken. Exhaust noise heard by the public is a complex mix of frequencies and sound levels. The human ear is more sensitive to higher frequencies, and a 6, 8, or 12 cylinder engine is generally perceived to have a smoother sound than a 4 cylinder engine, due to the more regular airflow through the muffler, damping out the higher frequencies.

This means for bystanders, despite the same decibel level across a range of engines, the higher frequencies that are emitted by a 4-cylinder or rotary engine are what causes the most disturbance to the human ear, as opposed to the smoother sound of 6, 8, and 12 cylinder engines. In effect, for a given RPM, the lower the number of cylinders, the lower the fundamental frequency, but the greater the range of higher frequency spikes that will occur and cause increased annoyance.

Which vehicles the process applies to

The noise testing regime applies at this stage only to those vehicles referred by entry certifiers or Police, on the basis that they are, or may be, excessively noisy. This is in effect, for LTNZ and LVVTA, a learning curve

that will help Land Transport determine how best to deal with In-service noise testing later this year when they start development of the new Noise Emissions Rule.

LVVTA believes there is more work to do on this yet before the noise testing regime is applied to all modified production engine-swapped vehicles, and scratch-built vehicles. The larger the engine capacity, the more difficult it is to effectively silence the engine noise, and older vehicles in most other countries are required to meet less stringent noise regulations than newer vehicles, and this should be reflected in the eventual NZ test process. Some international standards-setting jurisdictions (ADR included) provide small tolerances based on engine power output. These are all necessary considerations for LVV, because of the very nature of LVV.

The certifiers involved

27 LVV Certifiers have been chosen to provide this service, selected (except where no scratch-built certifiers exist within a given region) from the scratch-built authorised certifiers, and based on geographical coverage needs. LVVTA has had discussions with all of these certifiers, and they will be attending LVVTA training sessions in Hamilton, Palmerston North, and Oamaru, during the week 10-15 July.

Depending on how things pan out over the next year, there may be a need for more LVV certifiers to be involved in the objective noise testing regime.

More information

The details of the objective noise testing process, and it's implementation, will be explained in detail at those training sessions in July for the ONT-authorised LVV certifiers, and a general over-view will be provided to all LVV certifiers at the next round of general LVV certifier training sessions later on this year.

If you have any queries or require any further clarification relating to this Information Sheet, please feel free to contact the technical team at the LVVTA office on (04) 238 4343.