Low Volume Vehicle Technical Association (inc)

SAFETY ALERT
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SAFETY ALERT

Aluminium Wheel Nuts

An investigation by the NZ Police's Serious Crash Unit and the Low Volume Vehicle Technical Association determined that the failure of multiple aluminium wheel nuts caused a wheel to detach from a vehicle, resulting in a serious crash. Further testing by LVVTA found aluminium does not perform adequately in this application.

Therefore, aluminium wheel nuts, regardless of grade, cannot be LVV certified unless provided as OEM equipment by a high-volume vehicle manufacturer for that particular vehicle.

In this case, the wheel nut failure caused the right rear wheel to detach from the vehicle, and the driver to lose control. The vehicle went into the path of an oncoming truck and trailer unit resulting in an accident in which the driver suffered critical injuries.

On inspection, if was found that some of the thread material remained on the wheel-studs whilst the nuts had completely come off, indicating that the threads of the nuts had failed.

Failure of aluminium wheel nuts can be caused in a number of ways, such as thread material being torn off the nuts by 'galling', over-tightening, under-tightening, the use of air tools (i.e. a 'rattle gun'), cross-threading, repeated thread cycles causing thread wear, or lack of lubricants on the threads.

Further testing by LVVTA determined that while the aluminium grade of the failed nuts was as stated by the manufacturer (T7075), all aluminium wheel nuts, regardless of grade, are more easily stripped than a steel equivalent.

Therefore, aluminium wheel nuts, regardless of grade, cannot be LVV certified unless provided as OEM equipment by a high-volume vehicle manufacturer for that particular vehicle.