

Use of sleeved wheel nuts with selected axles and wheels

November 2016

Priority: Urgent Necessary For Information



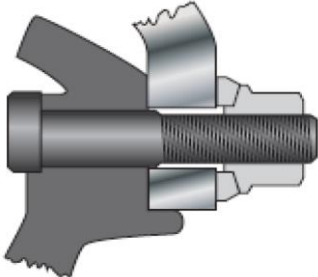
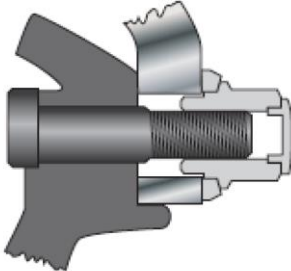
SA # 2016-2

Circulate: Driver Operator Workshop Parts Fleet Manager

The incident or issue:

An ATA Industry Technical Council member with extensive workshop experience failed to recognise that incorrect wheel nuts had been used to re-attach the factory supplied aluminium wheel assemblies to the steer axle of the truck he was driving. The standard ISO nut was fitted where a sleeved wheel nut should have been used. The standard ISO wheel nut fitted had a very limited amount of thread engagement and would not comply with the manufacturer's recommendation nor been able to maintain clamp loads to retain the wheel to the axle.

The thickness of the wheel's nave (centre disc) varies from a typical steel wheel at 12 mm up to 25 mm for an alloy wheel. As a result, sleeved nuts with appropriate wheel are commonly used when replacing steel with alloy wheels, negating the need to install longer wheel studs.

| | Standard ISO wheel nut | ISO wheel nut with threaded sleeve. |
|--|---|--|
| Wheel nut. |  <p>Ensure several threads of the stud must protrude past the end of the nut</p> |  <p>Cap on the nut is used to protect the thread from debris.</p> |
| Single wheel assembly mounting. Note dual wheel assembly is similar with sleeved nut extending through both rims. |  |  |
| Typical stud hole to clear M22 stud in the wheel. | 26 mm | 32 to 33 mm |

Source of images: Alcoa wheel end products

Solution:

Fit the correct wheel nuts to suit both the axle and wheel assembly, tension the wheel nuts appropriately and check them after about 100 kilometres of driving from its initial installation.

Follow-up actions for operators:

- Inspect the wheel end for the correct nut.
If it is unclear, remove a wheel nut to inspect. Then use the correct procedure to re-tension all nuts from loose.
- When upgrading from steel to aluminium rims, ensure the studs have adequate length to allow the stud to protrude past the end of the nut or use sleeve nuts.

Follow-up actions for operators:

- Add a new chapter to the ATA ITC Wheel End Security TAP at its next review.

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