

**Fastener
Comic Column**

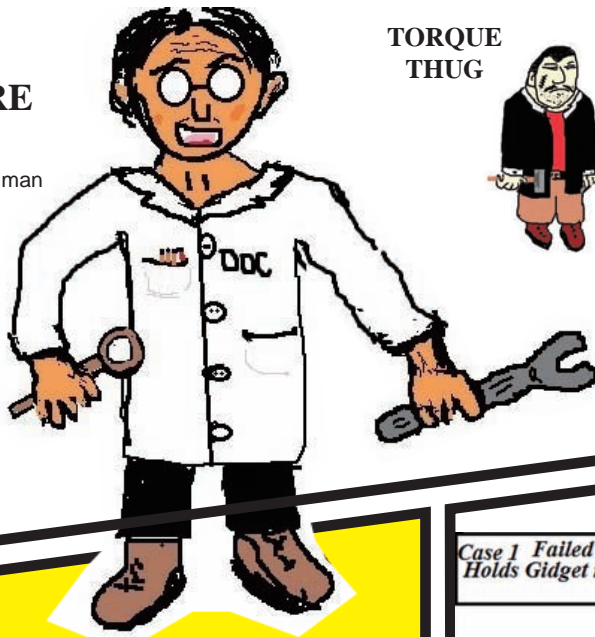
Case: Bolt Failure

螺栓失效案例

Illustrated by Thomas Doppke

**HARDWARE
DOC**

The fastener answer man



**TORQUE
THUG**



BOLT BOY

Faithful assistant to Hardware Doc

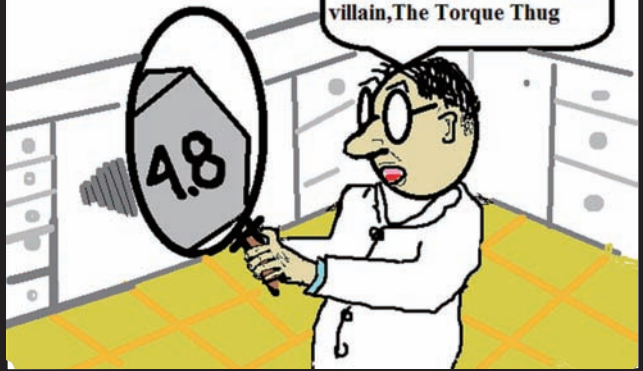


The Adventure of Hardware Doc and Bolt Boy

The dynamic duo takes on the foes of correct fastening as they solve failures and point out incorrect practices in attachment engineering and assembly procedures.

Case 1 Failed Gidget Bolt Holds Gidget motor together

Here's the problem. This should be a Grade 10.9 bolt. This is the work of that evil villain, The Torque Thug



and the bolt shows necking from over torquing also.



1. Match strength needed to bolt strength available. Use proper Grade parts.
2. Torque to value bolt is capable of obtaining. Low values for soft parts, higher grades for harder.
3. Beware of Torque Thug. He will try to get you to use wrong part by pointing to cost and other advantages.
4. Examine failures closely. Necking indicates torque too high for bolt used.
5. Check Standards for values of bolt grades. 4.8 is 40% of 10.9

This occasional cartoon will run as cases are presented to Hardware Doc. Send your problems to this magazine and Doc, and his companion Bolt Boy will help in the fight against the foes of good practice: Torque Thug, Corrosion Ghost, The Fatigue Fiend and the other gremlins of fastener correctness. (This cartoon column is the first and innovative cooperation between Fastener World Magazine and Thomas. E-mail your fastener questions for Hardware Doc to design@fastener-world.com.tw)