

## McKenny Van

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**From:** Cardu Carlo [REDACTED] >  
**Sent:** Wednesday, December 19, 2012 9:01 AM  
**To:** McKenny Van  
**Cc:** Ferreri Paolo; Caldarelli Giuseppe  
**Subject:** R: N146SL bolt exam

Dear mr McKenny  
Paolo Ferreri sent me your email below

Following initial investigation results, AMM instructions were improved in the wording, even if we did not actually change the content

Basically, we added a Caution in the control surfaces installation procedures, to remind that – in accordance with standard maintenance recommendation – self locking nuts must be replaced each time the surface is re-installed Avanti II AMM last revision includes these Caution, AMM Avanti will be updated at next revision

Here below the caution added on Elevator installation procedure

**CAUTION: USE NEW SELF-LOCKING NUTS EACH TIME THE ELEVATOR IS INSTALLED**

Also, a detailed breakaway torque table for self locking nuts is now reported in AMM Avanti II, supporting the instruction (reported below) on self-locking nuts in AMM 20-10

- B. Before final assembly make a check of the effectiveness of locking devices of self locking nuts in this way:
- Screw the nut onto the bolt until a minimum of three bolt threads are clear of the locking mechanism of the nut.
  - Use a torque wrench to measure the torque necessary to unscrew the nut.
  - If the torque value is less than the value given in Table 201 replace the nut.

The same table will be added in the AMM Avanti, next revision

With kind regards  
Carlo Cardu

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**Da:** Ferreri Paolo  
**Inviato:** martedì 18 dicembre 2012 22.41  
**A:** Cardu Carlo  
**Cc:** Caldarelli Giuseppe; Siviero Alberto  
**Oggetto:** I: N146SL bolt exam

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**Da:** McKenny Van [mailto:[REDACTED]]  
**Inviato:** Tuesday, December 18, 2012 10:24 PM  
**A:** Ferreri Paolo  
**Oggetto:** RE: N146SL bolt exam

Does Piaggio have any plans on modifying the maintenance instruction regarding the use/reuse of those self locking nuts on critical hardware?

**From:** Ferreri Paolo [mailto: [REDACTED]]  
**Sent:** Saturday, December 08, 2012 1:23 PM  
**To:** McKenny Van  
**Subject:** Re: N146SL bolt exam

Van,

yes, Antonello did report the findings of the lab examination of the hardware removed from the LH elevator hinges.

While it does not positively prove what the condition of the bolts was on the opposite side, it certainly suggests that the locking capability of the nuts was probably not checked as well at the time of installation.

Paolo

Sent from my iPhone

On 06/dic/2012, at 17:04, "McKenny Van" [REDACTED] wrote:

Paolo,

Did Antonello Greco convey the bolt/nut test findings to you?

One of the bolt/nut combinations recovered from N146SL had almost no breakaway torque (1.2 in-lbs), the other one had between 6-8 in-lbs (similar to the exemplar bolts Piaggio provided).

Van

**Van S. McKenny IV**  
Aerospace Engineer (Field)  
National Transportation Safety Board  
[REDACTED]

**From:** Ferreri Paolo [mailto: [REDACTED]]  
**Sent:** Wednesday, October 24, 2012 10:36 AM  
**To:** McKenny Van  
**Cc:** Budinski Michael; Kramer Donald; [REDACTED]; Antonello Greco  
**Subject:** Re: N146SL bolt exam

Van

our resident engineer, Antonello Greco, will arrive this evening in DC, and show up tomorrow at the NTSB lab for the examination of the hardware.

He is copied in this message, and his cell number is [REDACTED].