7000243 INDUSTRY REVIEW COMMENTS

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Doug Hubbard (comments from Internal Review)

COMMENT:

Doesn't look like anything terribly worrisome to me but I wonder what happened to make the Department feel the need to add this requirement?

RESPONSE: Currently there is no bolt tightening criteria in the FDOT Standard Specifications for ASTM A 307 bolts, which is the bolt designation stipulated in the FDOT Design Standards for the bearing type bolt connections used to construct Highway Sign Structures governed by Section 700. What has apparently been going on in the field, is that the Contractors have been substituting ASTM A 325 bolts for ASTM A 307 bolts (as permitted by the FDOT Design Standards), and the CEIs have been requiring the ASTM A 325 bolts to be tightened to achieve a slip critical (friction type) connection, by using the bolt tightening criteria for ASTM A 325 bolts in Section 460. This specification change gives bolt tightening criteria for ASTM A 307 bolts, which are less expensive to purchase and install. Also, this specification change clarifies that the same bolting criteria (for bearing type connections) be used to tighten ASTM A 325 bolts, when these bolts are used as a substitute for ASTM A 307 bolts.

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Bob Dion

COMMENTS:

The reference to section 649-5 is incorrect, this should be either article 649-5 or 649-5.

RESPONSE: Agreed, the change will be made.

Should anything be added at the end of this to indicate a range of acceptance, if for instance the torque on a 3 / 8" bolt is 14, not 15? Or should all bolts not meeting the test be tightened toin acordance with Table A? If the 3 bolts don't meet the table what happens.

RESPONSE: Nothing needs to be added, because as indicated in Table A, this is a minimum bolt torque tightening criteria. If one of the three bolts or a minimum of 10% if the fastener assemblies fails, the remaining bolts in the connection would need to be tested. However since this is a minimum testing criteria, the CEI would have no trouble making this call, because there are not that many bolts in these connections anyway. (Please note there are no more than 12 bolts per connection.)

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Lou Buenaventura, P.E.
Highway Safety Devices, Inc.

COMMENTS:

I have reviewed the proposed specification for Overhead Sign Structures and herein offer my comment.

The last sentence of the proposed spec requires the Engineer to witness a check of the torque on some of the fasteners. Also, this has to be performed within 24 hours after final tightening.

As you know, the installation and final tightening of some of these fasteners (those impacting traffic), as well as the subsequent "check" of these fasteners will need to be performed under MOT lane closures, slow rolls, detours, etc.

As such, it makes sense to perform the "check" immediately after the installation/final tightening occurs. This would allow us all to take advantage of the MOT that is already set up and also to least inconvenience the public.

So, can the "check" be performed immediately after the installation/final tightening occurs???

If so, you may want to consider adding a sentence in the spec stating that. Otherwise, I see a potential for disagreements over how soon the "check" can be performed.

Contractors will be concerned about having to setup MOT again (lane closures, slow rolls, detours, etc.) to perform the checks and also the potential for a one day delay to the completion of the sign structure.

Thanks for your consideration.

Lou Buenaventura, P.E.
Highway Safety Devices, Inc.

RESPONSE: The 24 hour requirement is the maximum amount of time that we want to transpire before minimum torque is checked. The reason for this requirement is that exposure to the elements could affect the bolt's torque-tension relationship. Testing the bolts after 24 hours could produce a high torque reading that could belie the fact that the bolts may have insufficient tension needed to achieve the required bearing type connection. Obviously, depending upon the Contractor's construction schedule, the CEI may have to test bolts before the 24 hour period has expired in order to avoid project delay and not force the Contractor to incur unnecessary MOT costs. However, this scenario is no different than many other construction operations that require close coordination between the Contractor and the CEI.

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Pat McCann

COMMENT:

A proposed spec. (7000243) was previously sent out for review. This spec. referenced 649.5 for installation. Question: does the author of 7000243 realize the changes proposed to 649-5 here?

RESPONSE: The author for the proposed specification change to 7000243 is the same author who proposed the change to 649-5. These proposed specification changes are written to compliment each other.

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Jeff Pouliotte

COMMENT:

I do not have the name of the caller, but his concern was that the specification as proposed required nuts and bolts to be lubricated so the nut can move freely throughout the full length of the thread. This is not possible since nuts used for this application are locking nuts and unthreading them would destroy the locking mechanism of the nut.

RESPONSE: Therefore I changed the third sentence to read as follows: "Use bolt, nut and washer assemblies that are lubricated and free of rust and corrosion".