



## Florida Department of Transportation

JEB BUSH  
GOVERNOR

605 Suwannee Street MS # 31  
Tallahassee, FL 32399-0450

DENVER J. STUTLER, JR.  
SECRETARY

April 10, 2006

This Memo Has Expired

**DCE MEMORANDUM NO.: 06-06**

(FHWA Approved: 4/10/06)

**TO: DISTRICT CONSTRUCTION ENGINEERS**

**FROM:** Brian Blanchard, Director, Office of Construction

**COPIES:** William Nickas, Duane F Brautigam, David Sadler, Steve Plotkin, Jeff Pouliotte, Andre Pavlov, Charlie Harvey, District Design Engineers, District Structures Design Engineers, District Maintenance Engineers, District Structures and Facility Engineers, Bob Burleson

**SUBJECT: CHANGE IN BOLTING CRITERIA FOR STRUCTURES GOVERNED BY SECTIONS 649 AND 700**

Effective immediately, the field bolting installation specification criteria for Structures governed by Specification Sections 649 (Steel Strain Poles, Steel Mast Arm and Monotube Assemblies) and 700 (Highway Signing), shall be modified

For all future and ongoing projects, where these structures have not yet been erected, please process a \$0.00 specification change as follows:

**ARTICLE 649-5 Installation:**

The last paragraph and Table B are deleted and the following is substituted:

*Install bolt, nut and washer assemblies, except nuts on anchor rods, in accordance with Section 460. Install nuts on anchor rods in accordance with the following: Use anchor bolt assemblies that are free of rust and corrosion, and lubricate these assemblies prior to installation so that the nut moves freely by hand through the full length of the thread. Bring the lower top anchor nuts on the anchor rods to a "snug tight" condition defined as: the tightness that is attained with a few impacts of an impact wrench or the full effort of an ironworker using an ordinary spud wrench such that more than 75 percent of the faying surfaces are in firm contact. Before snugging the lower top anchor nuts, all bottom leveling nuts shall be leveled. After snugging the lower top anchor nuts, all bottom leveling nuts shall be tightened to the base plate by full effort of an ironworker*

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*using an ordinary spud wrench. Use a beveled washer if outer face of the base plate is sloped more than 1:40 or if necessary to attain "snug tight" condition. After attaining "snug tight" condition, additionally tighten the lower top anchor nuts on the anchor rods in accordance with Table A. Nut rotation is relative to anchor rod, tolerance is plus 20 degrees. Install the upper top anchor nuts on the anchor rods on top of the lower top anchor nuts using the tightness that is attained with a few impacts of an impact wrench or the full effort of an ironworker using an ordinary spud wrench. During the tightening of the upper top anchor nuts, the lower top anchor nuts shall be restrained from movement by using an ordinary spud wrench.*

<i>Anchor Rod Diameter (in.)</i>	<i>Nut Rotation from snug Tight Condition</i>
<i>≤ 1 1/2</i>	<i>1/3 turn</i>
<i>&gt; 1 1/2</i>	<i>1/6 turn</i>

**SUBARTICLE 700-2.4 Overhead Sign Structures:**

Add the following Subarticle and Table:

**700-2.4.3 Installation:** *Install high strength ASTM A325 bolt, nut and washer assemblies for Span Sign Structure alternate splice connections in accordance with Section 460. Install nuts on anchor rod in accordance with Section 649-5. Install all other bolt (ASTM A307 or substitute ASTM A325), nut and washer assemblies in accordance with the following: Use bolt, nut and washer assemblies that are free of rust and corrosion, and lubricate these assemblies prior to installation so that the nut moves freely by hand through the full length of the thread. Tighten nuts, as necessary, to bring the faying surfaces of the assembly into full contact from the interior of the connection outwards in a symmetrical pattern. After bringing the faying surfaces of the assembly into full contact, tighten nuts to achieve the minimum torque as specified in Table A. Within 24 hours after final tightening, the Engineer will witness a check of the minimum torque using a calibrated torque wrench for no less than 3 bolts and a minimum of 10% of the fastener assemblies for each connection.*

<i>Bolt Diameter (in.)</i>	<i>Minimum Torque (ft.-lbs.)</i>
<i>3/8</i>	<i>15</i>
<i>1/2</i>	<i>37</i>
<i>5/8</i>	<i>74</i>
<i>3/4</i>	<i>120</i>
<i>7/8</i>	<i>190</i>
<i>1</i>	<i>275</i>
<i>1 1/8</i>	<i>375</i>
<i>1 1/4</i>	<i>525</i>

This memorandum serves as blanket approval to process a specification change and should be attached to the Field Supplemental Agreement/Work Order or the Supplemental Agreement.

Any questions pertaining to this matter should be directed to Jeff Pouliotte at (850) 414-4146 / SC 994-4146.

BB/pw