



## Florida Department of Transportation

**RICK SCOTT**  
**GOVERNOR**

605 Suwannee Street  
Tallahassee, FL 32399-0450

**ANANTH PRASAD, P.E.**  
**SECRETARY**

November 27, 2012

Monica Gourdine  
Program Operations Engineer  
Federal Highway Administration  
545 John Knox Road, Suite 200  
Tallahassee, Florida 32303

Re: Office of Design, Specifications  
Section **700**  
Proposed Specification: **7000204 Highway Signing, (REVISED).**

Dear Ms. Gourdine:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

These changes were proposed by Andre Pavlov of the State Structures Design Office to instruct the installer to make necessary adjustments to the leveling nuts to achieve the back rake shown on the plans. **The REVISION is to make Section 700 consistent with the wording of Section 649.**

Please review and transmit your comments, if any, within two weeks. Comments should be sent via email to SP965TT or [trey.tillander@dot.state.fl.us](mailto:trey.tillander@dot.state.fl.us).

If you have any questions relating to this specification change, please call me at 414-4140.

Sincerely,

V. Y. "Trey" Tillander, III, P.E.  
State Specifications Engineer

TT/cah

Attachment

cc: Florida Transportation Builders' Assoc.  
State Construction Engineer

**HIGHWAY SIGNING.****(REV 109-1526-12)**

SUBARTICLE 700-2.4.2 (Page 827) is deleted and the following substituted:

**700-2.4.2 Installation:** Install nuts on anchor bolts in accordance with 649-5 and 649-6 *with one exception these additional requirements at the end of step 5. For cantilever overhead sign structures, add the following to the end of step 5. aA after placement of the upright and prior to installation of the truss, adjust the leveling nuts beneath the base plate to achieve the back rake shown on the Camber Diagram. If the top surface of the base plate has a slope that exceeds 1:40, use beveled washers under the top nuts.*

Use ASTM A325 bolt, nut and washer assemblies for all installations other than anchor bolts as follows. Use bolt, nut and washer assemblies that are free of rust and corrosion and that are lubricated properly as demonstrated by being able to easily hand turn the nut on the bolt thread for its entire length. Tighten nuts to the full effort of an ironworker using an ordinary spud wrench a snug tight condition to bring the faying surfaces of the assembly into full contact which is referred to as snug-tight condition. Snug-tight is defined as the maximum nut rotation resulting from the full effort of one person on a 12 inch long wrench or equivalent. After bringing the faying surfaces of the assembly into full contact and to a snug tight condition, tighten nuts to achieve the minimum torque as specified in Table 700-1 unless the connection is an alternate splice connection of a span sign structure, in which case, tighten nuts in accordance with the turn-of-nut method of Table 460-7 of Section 460. Maintain uniform contact pressure on the faying surfaces during snugging and the subsequent final tightening process, by using a bolt tightening pattern that balances the clamping force of each bolt, as closely as possible, with the equal clamping force of a companion bolt. Within 24 hours after final tightening, the Engineer will witness a check of the minimum torque using a calibrated torque wrench for 3 bolts or a minimum of 10% of the bolts, whichever is greater, for each connection; however, do not perform this check on alternate splice connections of span sign structures.

| Table 700-1            |                              |
|------------------------|------------------------------|
| Bolt Diameter<br>(in.) | Minimum Torque<br>(ft.-lbs.) |
| 3/8                    | 15                           |
| 1/2                    | 37                           |
| 5/8                    | 74                           |
| 3/4                    | 120                          |
| 7/8                    | 190                          |
| 1                      | 275                          |
| 1 1/8                  | 375                          |
| 1 1/4                  | 525                          |

**HIGHWAY SIGNING.****(REV 10-15-12)**

SUBARTICLE 700-2.4.2 (Page 827) is deleted and the following substituted:

**700-2.4.2 Installation:** Install nuts on anchor bolts in accordance with 649-5 and 649-6 with one exception. For cantilever overhead sign structures, after placement of the upright and prior to installation of the truss, adjust the leveling nuts beneath the base plate to achieve the back rake shown on the Camber Diagram. If the top surface of the base plate has a slope that exceeds 1:40, use beveled washers under the top nuts.

Use ASTM A325 bolt, nut and washer assemblies for all installations other than anchor bolts as follows. Use bolt, nut and washer assemblies that are free of rust and corrosion and that are lubricated properly as demonstrated by being able to easily hand turn the nut on the bolt thread for its entire length. Tighten nuts to a snug tight condition to bring the faying surfaces of the assembly into full contact which is referred to as snug-tight. Snug-tight is defined as the maximum nut rotation resulting from the full effort of one person on a 12 inch long wrench or equivalent. After bringing the faying surfaces of the assembly into full contact and to a snug tight condition, tighten nuts to achieve the minimum torque as specified in Table 700-1 unless the connection is an alternate splice connection of a span sign structure, in which case, tighten nuts in accordance with the turn-of-nut method of Table 460-7 of Section 460. Maintain uniform contact pressure on the faying surfaces during snugging and the subsequent final tightening process, by using a bolt tightening pattern that balances the clamping force of each bolt, as closely as possible, with the equal clamping force of a companion bolt. Within 24 hours after final tightening, the Engineer will witness a check of the minimum torque using a calibrated torque wrench for 3 bolts or a minimum of 10% of the bolts, whichever is greater, for each connection; however, do not perform this check on alternate splice connections of span sign structures.

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