

## ORIGINATION FORM

**THE INFORMATION BELOW IS TO BE PROVIDED BY THE ORIGINATOR**

Modify Specification 6340000SS.  
Section/File number

New Section \_\_\_\_\_.  
Section number

**Subject:** Span Wire Assembly

**Origination Date:** November 3, 2010

**Originator:** Chester Henson  
**Office/Phone:** Roadway Design  
**Email address/** chester.henson@dot.state.fl.us

**Problem statement:** If a tether wire is indicated with a single point connection span wire assembly, it should only restrict movement of the heads under a low wind condition. The "S" hooks used to attach the tether wire to the pole should have a limited capacity.

**Information source:** The requirements were coordinated with industry, specifications, construction and maintenance.

**Background data:** The current specifications indicate that all hardware and fittings used for the attachment of the wire should have sufficient strength to resist the breaking strength of the wire.

**Recommended Usage Note:** All Jobs

**Expected fiscal impact, if implemented:** There is no financial impact.

**Desired implementation date:** Beginning with the July 2011 letting.



## *Florida Department of Transportation*

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SECRETARY

### **M E M O R A N D U M**

**DATE:** November 16, 2010

**TO:** Specification Review Distribution List

**FROM:** Rudy Powell, Jr., P.E., State Specifications Engineer

**SUBJECT:** Proposed Specification: 6340203 Span Wire Assembly – Hardware and Fittings.

In accordance with Specification Development Procedures, we are sending you a copy of a proposed specification change.

This change was proposed by Chester Henson of the State Roadway Design Office to only restrict movement of the heads under a low wind condition. The “S” hooks used to attach the tether wire to the pole should have a limited capacity.

Please share this proposal with others within your responsibility. Review comments are due within four weeks and should be sent to Mail Station 75 or to my attention via email at SP965RP or rudy.powell@dot.state.fl.us. Comments received after **December 14, 2010** may not be considered. Your input is encouraged.

RP/cah  
Attachment

## **HARDWARE AND FITTINGS** **(REV 11-4-10)**

SUBARTICLE 634-2.3 (Page 746) is deleted and the following substituted:

**634-2.3 Hardware and Fittings:** For Utility or Siemens-Martin Grade wires, use the connection hardware as specified herein. For installations that use other grades of wire, provide the hardware and fittings indicated on the plans. Provide only hardware and fittings made of galvanized steel or non-corrosive metal unless the fiberglass insulators specified in 634-2.4 are also required. Provide hardware and fittings of sufficient strength to resist the breaking strength of the wire with which they are used, *with the exception of "S" hooks on tether wires.*

Use an alloy steel eyebolt (ASTM F 541, Type 2) and a matching heavy hex nut (ASTM A 563, Grade C or D), both zinc coated in accordance with ASTM A 153, Class C, to connect the automatic compression dead-end clamp of the catenary wire or messenger wire to the wood or concrete strain poles. Sizes of eyebolts, supplied with nuts and washers, are as following: Use a 3/4 inch diameter bolt for maximum of one 7/16 inch diameter catenary (or messenger) wire, or maximum of two 3/8 inch diameter catenary (or messenger) wires. Use a 1 inch diameter bolt for maximum of one 1/2 inch diameter catenary (or messenger) wire, or maximum of two 7/16 inch diameter catenary (or messenger) wires. Use 1-1/4 inch diameter bolt for maximum of two 1/2 inch diameter catenary (or messenger) wires. For two point attachments, connect the messenger wire at the lower attachment location. Do not use thimbleye bolts for these connections.

Only use thimbleye and eye bolts, 3/4 inch in diameter, minimum, to connect the automatic compression dead-end clamps of tether wires to wood or concrete strain poles.

Only use *stainless steel (Grade 316)* "S" hooks *with a material gauge of 11/32 inch, 5/16 inch in diameter, minimum*, when connecting the tether wire to all poles.

Ensure that other hardware and fittings, as required for the attachment of a span wire assembly to support poles or structures, are in accordance with the details shown in the Design Standards.

SUBARTICLE 634-3.3 (Pages 747 – 748) is deleted and the following substituted:

### **634-3.3 General Requirements:**

(a) Provide a span wire assembly with catenary, messenger and tether wires of one continuous length of wire cable with no splices except when an insulator is required by 634-2.4. Connect the insulator, if required, to the cable with automatic compression dead-end clamps.

(b) Attach the span wire assemblies to the support poles or structures by means of automatic compression clamps and accessory hardware.

(c) Assemble the washer and nut on the oval eye bolt with the flat washer next to the pole. Tighten the nut sufficiently to prevent the oval eye bolt from rotating.

(d) For two point attachments, install the messenger wire with the following tensions per 100 feet. Linearly prorate cable tensions for other lengths from these values:

Cable Size Inch	Wire Tension Lbs.
3/8	340.0
7/16	500.0
1/2	645.0

(e) The catenary wire shall be tensioned to provide a 5%  $\pm$ *plus or minus* 0.5% sag *for two point span wire attachments. The catenary wire shall be tensioned to provide a 3%  $\pm$ plus or minus 0.5% sag for single point span wire attachments.*

(f) Install the span wire assemblies in accordance with the Design Standards, Index No. 17727, and at a height on the support poles which will provide a clearance from the roadway to the bottom of the signal head assemblies as shown in Index 17727.

(g) Connect all span wires to the pole grounding system in accordance with Section 620.

(h) Obtain and meet all provisions of the National Electric Safety Code (ANSI-C2) regarding clearance from electric lines, contacting of utility owners, and safety requirements prior to span wire installation.

(i) Prior to installation of the two point attachment span wire assembly, submit the method of providing the required tension in the messenger wire to the Engineer for approval.

