

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS AND TESTING DIVISION

MATERIALS PROCEDURE

PROCEDURE FOR DETERMINING THE TORQUE
ON TAMPER RESISTANT HARDWARE

1. PURPOSE

- 1.1 To set forth a procedure for determining the torque on tamper resistant hardware.
-

2. SCOPE

- 2.1 The procedure is applicable for tamper resistant hardware furnished under Section 661.2 of the West Virginia Division of Highways Standard Specifications for Roads and Bridges.
-

3. EQUIPMENT

- 3.1 Calibrated torque wrench which will read in inch-pounds or foot pounds.
- 3.2 12-inch section of 1 lb./ft u-channel post.
- 3.3 6 inch x 9 inch plate manufactured of 0.080 inch aluminum meeting the requirements of ASTM B-209, alloy 5052-H38. The plate shall contain two 3/8 inch holes drilled 1.5 inch from either end and be centered from both ends.
- 3.4 4 inch x 4 inch shim manufactured of 0.080 inch aluminum meeting the requirements of ASTM B-209, alloy 5052-H38. The shim shall contain one 3/8 inch hole drilled offset 1.5 inch on the center of the shim.
- 3.5 Screwdriver
-

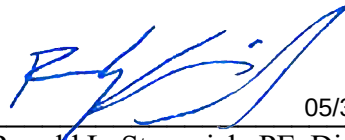
4. SAMPLE REQUIREMENTS

- 4.1 Samples are to be selected in accordance with Section 4.6 of MP 661.02.40.
-

5. PROCEDURE

- 5.1 Place the shim on the flange side of the u-channel post.
- 5.2 Place the plate on top of the shim and line up the holes.
- 5.3 Place the steel washer, then the nylon on the bolt and push through the plate, shim and back of the u-channel.
- 5.4 Hand tighten the nut on to the bolt until it touches the back of the u-channel.
- 5.5 Set the reading on the torque wrench to zero.

- 5.6 Using the torque wrench, slowly turn the nut until the hex shaped drive head separates from it. Hold the bolt head with the screwdriver to prevent any movement during the torquing operation.
- 5.7 Read the torque wrench to determine the breaking point. Results are to be reported in foot-pounds.



05/31/2023

Ronald L. Stanevich, PE, Director
Materials Control, Soils & Testing Division

MP 661.20.00 Steward – Metals Section
RLS:H