

**SUPERSEDED BY EB 99-025
EFFECTIVE 3/17/99**

ENGINEERING INSTRUCTION

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

SUBJECT: SAMPLING, TESTING AND INSPECTION OF
ITEM 715-14-HIGH STRENGTH BOLTS, NUTS AND WASHERS
Subject Code: 7.35

Distribution:

Main Office

Regions

Special

Code: 80-18

Date: April 3, 1980

Supersedes:

APPROVED:

J. J. Harrigan

The purpose of this Engineering Instruction is to clarify the procedures for Sampling and Inspection of High-Strength Bolts, Nuts and Washers, (Fasteners) and for the submission of sampled fasteners to the Materials Bureau for testing.

These fasteners shall conform to the following ASTM standards:

- A325 - High Strength Bolts
- A563 - Carbon and Alloy Steel Nuts
- F436 - Hardened Steel Washers



All high strength fasteners in each control lot shall be inspected for proper markings prior to sampling and during the course of the work. The required markings for high-strength fasteners are described herein. Any lot containing improperly marked bolts, nuts and/or washers shall be rejected.

Fasteners to be used with unpainted ASTM A588 steel shall display the proper markings to indicate they are manufactured from weathering steel. Type 1 bolts are most commonly used for painted structures. However, Type 2 bolts are approved alternates. Weathering bolts, nuts and washers may be used in painted structures provided there is no additional charge to the State.

Fasteners shall be sampled and submitted for testing in accordance with the provisions of Section 204.1.3.5 of the Steel Construction Manual. Only fasteners to be used in direct support connections as described in that section are to be submitted for testing.

Two bolts and two nuts shall be submitted from each manufacturer's control lot. Two washers from each lot shall be submitted for testing when weathering fasteners are required. A separate BR-240 Form shall be provided to represent each control lot sampled. A typical form is attached. Each BR-240 shall show the control lot number, type, length and diameter of bolts and the grade and bolt diameter for nuts and washers.

Before sampling the fasteners, the Engineer shall examine the certified copies of test reports provided by the manufacturer as required by Section 715-01 of the Standard Specifications to ensure that the bolts, nuts and washers were manufactured to specification requirements. The control lot numbers on the test reports must match the lot numbers marked on the shipping containers. If this criteria is not met, the lot in question shall be rejected.

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As the fasteners are being sampled, and during installation, they should be inspected to determine that they have no workmanship defects such as head bursts, (open breaks in the flats or corners of the heads) seams, cracks, burned heads, etc., and that they do not have incomplete or improper markings. Fasteners having any of the above visible defects shall not be submitted for testing and shall not be used in the work.

The Product Control Unit of the Materials Bureau will process BR-240 forms sending acceptance notification directly to the Region or agency from which the form was received. When fasteners do not meet specification requirements, the BR-240 will be returned with the following statement: "Tested and does not conform to specification requirements. Action to be taken by the DCES". The Structures Sub-division will make the final determination regarding the acceptability of fasteners not meeting all product analysis test requirements and will notify the Region or the Inspection agency directly.

If it is determined by the DCES that additional samples are required, a new BR-240 form shall be prepared indicating that the material is a resample of the original lot. The resampled material shall be referenced to the serial number of the original BR-240 form.

REQUIRED MARKINGS FOR HIGH STRENGTH FASTENERS

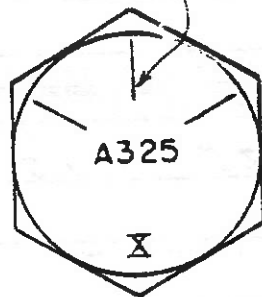
PAINTED STRUCTURES

3 Radial Lines at 60°

BOLTS-A325



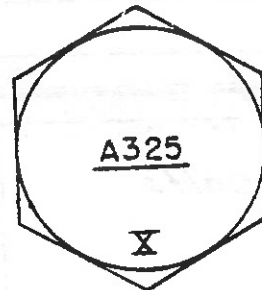
TYPE 1



TYPE 2

UNPAINTED STRUCTURES

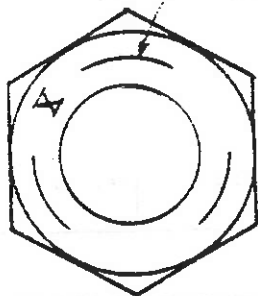
WEATHERING



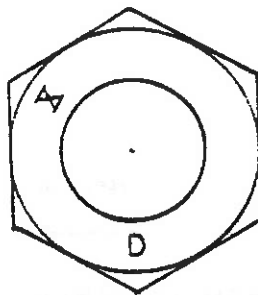
TYPE 3

3 Circumferential lines at 120°

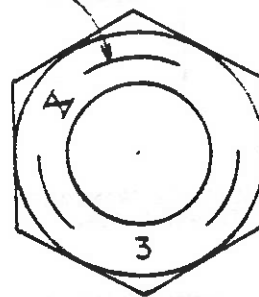
NUTS-A563



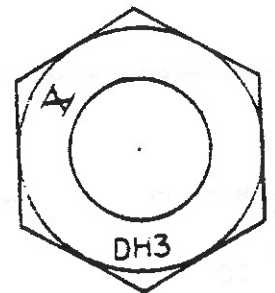
GRADE C



GRADE D



GRADE C3

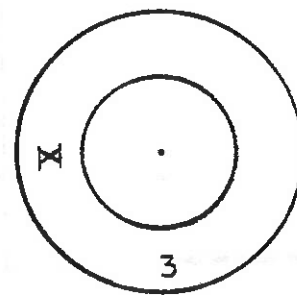
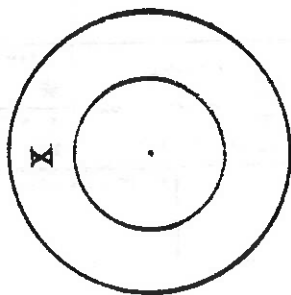


GRADE DH3

APPROVED ALTERNATES

ASTM A563 - Grade DH
ASTM A194 - Grade 2 & 2H
Grade symbol must appear
on one face of the nut.

WASHERS-F436



X Manufacturers Identification Symbol.

Additional markings may be added at the manufacturer's option.

BR-240a (11/74)

SAMPLE AND ACCEPTANCE TRANSMITTAL
NYSDOT MATERIALS BUREAU

SERIAL NO

DATE REC'D

TEST NO

TO:

Material Represented by the Sample Described Below Was _____

ON _____ For _____

(Action Official Only When Validated Below By The Materials Bureau)

UPPER PORTION FOR MATERIALS BUREAU ONLY - INSPECTOR TO COMPLETE ALL APPLICABLE BOXES BELOW

16 ADDITIONAL INFO SEE INSTRUCTIONS ON REAR

*7/8" x 3" bolts
Type 3
Web splice
connections*

1 MATERIAL ASTM A325		2 TEMP NO 715-14	3 DATE SAMPLED x/x/xx	4 CONTRACT NO D96XXX
5 SUPPLIER AND LOCATION *			6 QUANTITY IN LOT *	7 LOT NO *
8 MANUFACTURER AND LOCATION IF DIFFERENT THAN ABOVE *			9 BATCH NO	10 DATE OF MFG
11 SAMPLED AT <input type="checkbox"/> MILL <input type="checkbox"/> PLANT <input checked="" type="checkbox"/> JOB	12 TYPE <input checked="" type="checkbox"/> CONTROL SAMPLE <input type="checkbox"/> NFO SAMPLE	<input type="checkbox"/> BPR SAMPLE <input type="checkbox"/> APPROVED LIST MAT <input type="checkbox"/> CERTIFIED MAT	13 SAMPLED FROM *	
14 SAMPLED BY (INCL LIST NO OR AGENCY) *			15 CONTRACTOR AND PROJECT LOCATION	
			MATERIALS BUREAU VALIDATION	

RETAIN PINK COPY FOR YOUR RECORDS

BR-240a (11/74)

SAMPLE AND ACCEPTANCE TRANSMITTAL
NYSDOT MATERIALS BUREAU

SERIAL NO

DATE REC'D

TEST NO

TO:

Material Represented by the Sample Described Below Was _____

ON _____ For _____

(Action Official Only When Validated Below By The Materials Bureau)

UPPER PORTION FOR MATERIALS BUREAU ONLY - INSPECTOR TO COMPLETE ALL APPLICABLE BOXES BELOW

16 ADDITIONAL INFO SEE INSTRUCTIONS ON REAR

*7/8" Nuts
Grade C3*

1 MATERIAL ASTM A563		2 TEMP NO 715-14	3 DATE SAMPLED x/x/xx	4 CONTRACT NO D96XXX
5 SUPPLIER AND LOCATION *			6 QUANTITY IN LOT *	7 LOT NO *
8 MANUFACTURER AND LOCATION IF DIFFERENT THAN ABOVE *			9 BATCH NO	10 DATE OF MFG
11 SAMPLED AT <input type="checkbox"/> MILL <input type="checkbox"/> PLANT <input checked="" type="checkbox"/> JOB	12 TYPE <input checked="" type="checkbox"/> CONTROL SAMPLE <input type="checkbox"/> NFO SAMPLE	<input type="checkbox"/> BPR SAMPLE <input type="checkbox"/> APPROVED LIST MAT <input type="checkbox"/> CERTIFIED MAT	13 SAMPLED FROM *	
14 SAMPLED BY (INCL LIST NO OR AGENCY) *			15 CONTRACTOR AND PROJECT LOCATION	
			MATERIALS BUREAU VALIDATION	

RETAIN PINK COPY FOR YOUR RECORDS

** Enter information available*

BR-242a (11/74)

SAMPLE AND ACCEPTANCE TRANSMITTAL
NYSCOT MATERIALS BUREAU

SERIAL NO.

DATE REC'D

TEST NO

TO:

Material Represented by the Sample Described Below Was _____

ON _____

For _____

(Action Official Only When Validated Below By The Materials Bureau)

UPPER PORTION FOR MATERIALS BUREAU ONLY — INSPECTOR TO COMPLETE ALL APPLICABLE BOXES BELOW

16 ADDITIONAL INFO SEE INSTRUCTIONS ON REAR

*7/8" Washers
Weathering "3"*

1 MATERIAL <i>ASTM F436</i>		2 ITEM NO <i>715-14</i>	3 DATE SAMPLED <i>X/X/XX</i>	4 CONTRACT NO <i>D96XXX</i>
5 SUPPLIER AND LOCATION <i>*</i>			6 QUANTITY IN LOT <i>*</i>	7 LOT NO <i>*</i>
8 MANUFACTURER AND LOCATION IF DIFFERENT THAN ABOVE <i>*</i>			9 BATCH NO	10 DATE OF MFG
11 SAMPLED AT <input type="checkbox"/> MILL <input type="checkbox"/> PLANT <input checked="" type="checkbox"/> ICB	12 TYPE <input checked="" type="checkbox"/> CONTROL SAMPLE <input type="checkbox"/> ICB SAMPLE	<input type="checkbox"/> BPR SAMPLE	13 SAMPLED FROM <i>*</i>	
		<input type="checkbox"/> APPROVED LST MAT	14 SAMPLED BY (INCLUDE ST NO OR AGENCY) <i>*</i>	
15 CONTRACTOR AND PROJECT LOCATION			MATERIALS BUREAU VALIDATION	

RETAIN PINK COPY FOR YOUR RECORDS

** Enter information available*