NAVISTAR, INC.

Material, Parts, and Process Specifications (MPAPS)		NUMBER: MPAPS S-B-40.101-GS/PL
		Former Designation: ESP-B-40.101-GS
TITLE: Round U-Bolts – English Series (Noun Code 0810)		CURRENT REV No.: 1506 / DATE: June 2015
WRITTEN/EDITED BY: Materials Engineering	APPROVED BY: Materials Engineering	SUPERSEDES: ESP-B-40.101-GS - August 2006

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This specification may involve hazardous materials, equipment, and procedures. This specification does not purport to address all of the safety issues associated with its use. The user is responsible to consult appropriate safety and health practices and to determine the applicability of regulatory limits prior to use.

Change Notice: **Changed to New MPAPS format; Combined GS, PP.**

1.0 GENERAL: The Round U-Bolts covered by this standard are those used in general purpose applications.

2.0 POLICY FOR SELECTING PARTS FOR NEW DESIGN: Approved parts are so designated to reduce variety of parts and assure maximum availability interchangeability, and cost savings in volume buying.

For new design, parts shall be selected from "Approved" part list only.

Diameters: 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, and 1 inch. Threads: UNC

Shank Length Incrementation:

When Shank Length C is:	Thru 1/2" dia	Over 1/2" dia
	Length Increments are:	
Up to 4 inches	.25 Inch	---
From 4 to 12 inches	.50 Inch	1.00 inch
Over 12 inches	1.00 inch	1.00 inch

Thread Length:

When Shank Length C is:	Thread Length is:
Up To and Including 2 inches	.75 inch
Over 2 inches and Including 3 inches	1.00 inch
Over 3 inches and Including 6 inches	1.50 inch
Over 6 Inches	3.00 inch

3.0 THREADS: Unified coarse, rolled threads. Re-rolled threads are not permissible. Threads will be free from nicks, burrs, slivers, and laps which will affect the nut engagement or torque.

4.0 BODY DIAMETER: The diameter of the unthreaded shank at any point will not be less than the minimum pitch diameter of the thread.

5.0 FLATNESS: U-bolts are to be flat to within .005 inch per inch of shank length (C).

6.0 MATERIAL: SAE Grade 4 (same as studs) medium carbon cold drawn steel per SAE J429, or Type 5 per NAVISTAR MPAPS F-31, Part I.

7.0 MECHANICAL REQUIREMENTS AND TEST PROCEDURES: The test specimen will be cut stud-like from either shank of the "U" (utilizing the maximum available thread length). The specimen will meet the mechanical properties and testing requirements as specified for SAE Grade 4 in SAE J429 and for Type 5 as specified in NAVISTAR, INC. MPAPS F-31, Part I.

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8.0 DESIGN GUIDE: It should be recognized that the "U" configuration may not sustain a load equivalent to two bolts or studs of the same size and material grade or type; thus, actual load carrying capacity of U-bolts should be determined by saddle load tests.

9.0 FINISH: U-bolts will be furnished coated in accordance with NAVISTAR, INC. Engineering Material Specifications and class listed below:

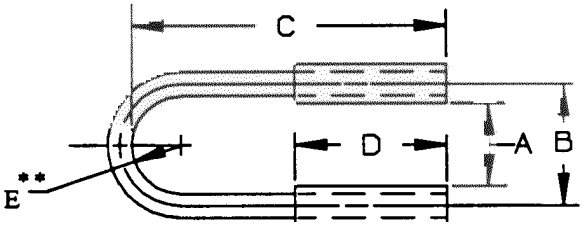
Phosphate Coating (PHC) – MPAPS G-1, Class B-2.

NOTE: Coating will be applied to the threaded surface and a distance of 1.0 inch minimum above the threads. Complete coating is permissible.

10.0 RESTRICTED CHEMICAL SUBSTANCES: Effective January 1, 2007, all product supplied to the requirements of this specification must comply with the requirements of the MPAPS B-50 specification.

11.0 WORKMANSHIP: U-bolts will be clean and free from rust, scale, sharp edges, folds, laps, pipe, splits, internal bursts, or nonmetallic inclusions which will affect the performance of the bolt. Depth of seams will not exceed 3 percent of the nominal diameter of the U-bolt.

TOLERANCES	
Center to Center dimension (B).	+ .06 - .00
Shank Length (C)	± .06
Thread Length (D)	± .06
Radii (E)	+ .03 - .00



Dimensions in inches:

Nominal Size	1/4	5/16	3/8	7/16*	1/2	9/16*	5/8	3/4	7/8	1
Threads Per Inch	20	18	16	14	13	12	11	10	9	8
Pitch Dia, Max	.2164	.2752	.3331	.3897	.4485	.5068	.5644	.6832	.8009	.9168
Pitch Dia, Min	.2127	.2712	.3287	.3850	.4435	.5016	.5589	.6773	.7946	.9100
Pitch Dia, Basic	.2175	.2764	.3344	.3911	.4500	.5084	.5660	.6850	.8028	.9188

* Non-Preferred Diameters

** Radius is equal to $\frac{\text{“B” – min pitch diameter}}{2}$

(Round off min pitch diameter to two places per EDS A-5.)

12.0 PART LIST:

12.1 Approved:

Nominal Size	A Span Width	B Center DIM	C Shank Length	D THD	E RAD	Part Number
3/8 -16	1.00	1.38	1.75	.75	.52	726510R1
3/8 -16	4.06	4.44	5.50	1.50	2.06	26943R1

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