NAVISTAR, INC.

Material, Parts, and Process Specifications (MPAPS)	NUMBER: MPAPS S-W-3.101-GS/PL	
	Former Designation: ESP-W-3.101-GS	
TITLE: Rod End Clevises and Eyes - English Series (Noun Code – 9940)	*CURRENT REV No.:* 1506	*DATE:* June 2015
WRITTEN/EDITED BY: Materials Engineering	*APPROVED BY:* Materials Engineering	*SUPERSEDES:* ESP-W-3.101-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, NPP.**

1.0 GENERAL: This standard consists of adjustable rod end clevises, weldable (nonthreaded) rod end clevis, and weldable rod end eyes. All machined parts conform to SAE J493.

2.0 MISCELLANEOUS DIMENSIONS AND TOLERANCES: General tolerance for all machined parts will be ±.010 unless otherwise specified. The centerline of the cross hole bosses will be ±1 ° to the boss surface. The width between clevis bosses will be the specified nominal within a tolerance of +.010. The width of the boss on the eye will be the specified nominal with a tolerance of plus .000, minus .010. This will prevent having more than 0.010 interference in assembly.

General tolerances for all forged parts are as follows:

Thickness - +.03, -.01
Length - +.06, -.03
Width - +.03, -.00
Straightness - +.03 from centerline in any plane.

3.0 THREADS: Unified Series, Class 2B.

4.0 MATERIAL: Threaded clevises - Steel (STL), Code 0-115 per MPAPS A-0, Part II.

Caution: These parts are not suitable for welding.

Weldable (nonthreaded) clevises and eyes - Steel (STL), Code 0-300W per MPAPS A-0, Part II.

5.0 FINISHES: Nonthreaded parts will be furnished plain (PLN). As designated by part number, threaded parts will be furnished plain, plated, or coated in accordance with the Navistar Engineering Material Specification and class listed below:

Plain (PLN)
Zinc Trivalent (ZN6A) – MPAPS G-20, Class 6A.
Phosphate Coating (PHC) – MPAPS G-1, Class B-2.

6.0 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.

7.0 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.

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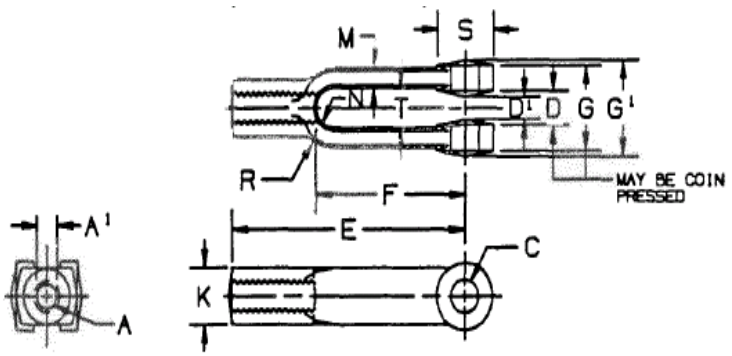
For new design, parts shall be selected from "Approved" part list only.

Types: Machined parts.
Finish: ZN6A or PHC (threaded parts).
PLN - weldable (nonthreaded parts).
Sizes: All except 7/16 and 7/8 rod sizes.

8.0 DEFECTS: Parts will be free from burrs, loose scale, sharp edges, and all other defects that might affect their serviceability.

9.0 ADJUSTABLE ROD END CLEVISES (NOUN CODE – 9940):



9.1 Part List:

9.1.1 Approved:

Dimensions in Inches		LIGHT SERIES						HEAVY SERIES				
	Nominal Size	**#10**	**1/4**	**5/16**	**3/8**	**7/16 ***	**1/2**	**1/2 ***	**5/8**	**3/4**	**7/8**	**1**
A	Threads per Inch	32	28	24	24	20	20	20	18	16	14	14
	Pitch Dia, Max	.1736	.2311	.2902	.3528	.4104	.4731	.4731	.5949	.7159	.8356	.9609
	Pitch Dia, Min	.1697	.2268	.2854	.3479	.4050	.4675	.4675	.5889	.7094	.8286	.9536
A'	Minor Dia, Max	.1641	.2190	.2754	.3372	.3916	.4537	.4537	.5730	.6908	.8068	.9315
	Minor Dia, Min	.1562	.2113	.2674	.3299	.3834	.4459	.4459	.5649	.6823	.7977	.9227
C	Hole Dia, Nom	3/16	1/4	5/16	3/8	7/16	1/2	1/2	5/8	3/4	7/8	1
	Hole Dia, Max	.1885	.2510	.3135	.3760	.4385	.5010	.5010	.6260	.7510	.8760	1.0010
	Hole Dia, Min	.1865	.2490	.3115	.3740	.4365	.4980	.4980	.6230	.7480	.8730	.9980
D	Inside Width, Nom	3/16	9/32	11/32	7/16	1/2	9/16	9/16	11/16	13/16	15/16	1-1/16
	Inside Width, Max	.1975	.2912	.3537	.4475	.5100	.5725	.5725	.6975	.8225	.9475	1.0725
	Inside Width, Min	.1775	.2712	.3337	.4275	.4900	.5525	.5525	.6775	.8025	.9275	1.0525
G	Outside Width, Nom	7/16	5/8	3/4	7/8	1	1-1/8	1-1/8	1-3/8	1-5/8	1-7/8	2-1/8
	Outside Width, Max	.4475	.6350	.7600	.8850	1.0100	1.1350	1.1350	1.3850	1.6350	1.8850	2.1350
	Outside Width, Min	.4275	.6150	.7400	.8650	.9900	1.1150	1.1150	1.3650	1.6150	1.8650	2.1150
D'	Inside Width/ Forged	.125	.219	.281	.375	.438	.500	.500	.625	.750	.875	1.000
G'	Outside Width/ (Forged)	.500	.688	.812	.938	1.062	1.188	1.188	1.438	1.688	1.938	2.188
S	Boss Diameter	3/8	1/2	19/32	11/16	13/16	15/16	15/16	1-3/16	1-7/16	1-11/16	1-15/16
T	Slot Width	.219	.312	.375	.469	.531	.594	.594	.719	.844	.969	1.094
F	Slot Length	1.000	1.250	1.438	1.625	1.875	1.875	3.062	3.688	4.562	5.250	6.000
K	Body Diameter	5/16	7/16	1/2	5/8	23/32	13/16	13/16	1-1/16	1-1/4	1-7/16	1-5/8
E	Length	1-9/16	2	2-1/4	2-1/2	2-7/8	3	4-3/16	4-15/16	6-1/16	7-1/8	8
M	Web Thickness	.094	.141	.172	.188	.219	.250	.250	.312	.375	.438	.500
N	Radius	.109	.157	.188	.234	.266	.297	.297	.359	.422	.484	.547
R	Radius	.094	.141	.172	.188	.219	.250	.250	.312	.375	.438	.500
Finish		**PART NUMBERS - STEEL**										
* Machined, PLN			104036	104037	104038		104039					
Machined, ZN6A					144243	144244	144245	453499				
Machined, PHC							144256	453500				

*Non-Preferred Styles, Sizes and Finishes LH=LeftHandThread

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