

NAVISTAR, INC.		
Material, Parts, and Process Specifications (MPAPS)		NUMBER: MPAPS S-J-7.101-GS/PL
		Former Designation: ESP-J-7.101-GS
TITLE:	Clevis Pins – English Series (Noun Code 6200)	CURRENT REV No.: 1704
		DATE: Apr. 2017
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<i>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.</i>		

1.0 GENERAL: This standard conforms essentially with the **ANSI B18.8.1** standard for clevis pins. The clevis pins specified are intended for use in conjunction with clevises and rod end eyes in general industrial applications. The cotter pins specified are intended for use with clevis pins contained herein and in pinned bolt and nut assemblies or other types of free-fitting pinned assemblies in general industrial applications.

The inclusion of dimensional data in this standard is not intended to imply that all of the products described are stock production sizes.

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.

Material: Hard

Finishes: Plain (PLN), Zinc Trivalent (ZN6A)
Phosphate Coated (PHC)

Length for Standard Clevises: See chart below

PREFERRED LENGTHS

Diameter	Length	Diameter	Length
3/16	.580	1/2	1.360
1/4	.770	5/8	1.610
5/16	.940	3/4	1.910
3/8	1.060	7/8	2.160
7/16	1.190	1	2.410

3.0 SERVICE PARTS SUBSTITUTION POLICY: In the event that engineering does not indicate a "Do not substitute" in engineering specifications, the following substitutions may be implemented in service. This policy is the result of a proposal circulated April 20, 1981, and subsequently approved by engineering departments worldwide.

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Clevis Pins

To be Replaced	Service Replacement
Plain (PLN) Finish	Zinc Trivalent (ZN6A) or Phosphate Coating (PHC) (if ZN6A equivalent is not set up for service.)

- 4.0 TOP OF HEAD:** The top of the head will be flat and either charnfered or rounded at outer periphery.
- 5.0 BEARING SURFACE:** The bearing surface of the head will be flat and square with the axis of pin (determined over a distance from under the head equivalent to 1.5 times the basic pin diameter) within 2 degrees.
- 6.0 ECCENTRICITY:** The head of pin will not be eccentric with axis of the shank of pin by an amount equal to more than 6 per cent of the maximum head diameter or 0.010 in., whichever is greater.
Eccentricity will be defined as being one-half the full or total indicator reading.
- 7.0 LENGTH INCREMENTS:** The tabulated lengths apply to pins intended for use with standard clevises, without spacers. When required, it is recommended that other pin lengths be limited, wherever possible, to nominal lengths in 0.06 in. increments.
- 8.0 LOCATION:** The hole location on all clevis pins will be specified as the distance, measured parallel to the axis of pin, from the bearing surface of the head to the center line of the hole. For pins having lengths other than those tabulated, the limits for "F" will be determined by subtracting reference dimension "J" from the maximum and minimum pin length "C."
- 9.0 ALIGNMENT AND ANGULARITY:** The axis of hole through shank will not be offset from the axis of pin by more than 0.010 in. for the 3/16 and 1/4 in. nominal pin sizes and 0.020 in. for all larger pin sizes, and will be square with the axis of pin within 2 degrees.
- 10.0 COUNTERSINK:** The hole will be countersunk or edges otherwise relieved at both ends to remove all burrs.
- 11.0 MATERIAL AND HEAT TREATMENT:** Clevis pins will be made from be fully killed, fine grain steel, code 0-100 or 0-201 MPAPS A-0 Part II, and will be case hardened per the MPAPS and class listed below:

Nominal Pin Diameter	Total Case Depth	Specification And Classification
3/16 - 3/4	0.002 - 0.020	MPAPS A-40, Class 1A, 1B, 2A, 2B or 3
7/8 - 1-1/4	0.010 - 0.020	MPAPS A-40, Class 3

- 12.0 FINISHES:** As designated by part number, pins will be furnished plain, plated or coated in accordance with the MPAPS and class listed below:

Zinc Trivalent (ZN6A) – MPAPS G-20, Class 6A.

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

Where electroplating of carbon steel parts is such that it might induce hydrogen embrittlement, pins will be baked or treated in such a manner as to be free of such embrittlement.

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