NAVISTAR, INC.

Material, Parts, and Process Specifications (MPAPS)	NUMBER: MPAPS S-D-200.102-GS/PL	
	Former Designation: ESP-D-200.102-GS	
TITLE: Wobble Gage and Gaging for Cross Recess Tapping and Wood Screws - English Series (Noun Code 7450)	CURRENT REV No.: 1506	DATE: June 2015
WRITTEN/EDITED BY: Materials Engineering	APPROVED BY: Materials Engineering	SUPERSEDES: ESP-D-200.102-GS - September 2000

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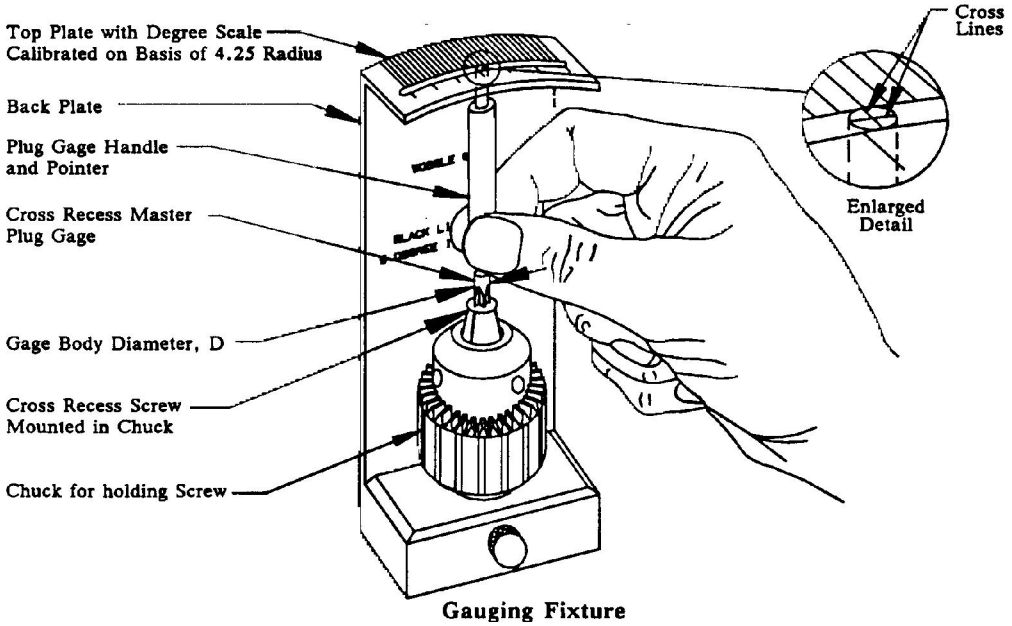
This specification may involve hazardous materials, equipment, and procedures. This specification does not purport to address all of the safety issues associated with its use. The user is responsible to consult appropriate safety and health practices and to determine the applicability of regulatory limits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

Change Notice: **Changed to New MPAPS format.**



Gauging Fixture

1.0 GENERAL: Wobble gaging provides a means for determining the compatibility of cross recesses in the heads of screws with companion screw drivers and will indicate the point where deviations in the recess contours affects satisfactory driver engagement. Recesses which exhibit excessive wobble characteristics will result in poor screw driveability because of driver camout prior to attaining normal torque level; damage to recesses; and/or accelerated driver wear.

The allowable total wobble gaging limits tabulated herein were predicated originally on the gaging of plain finish (unplated or uncoated) screws. However, subsequent experience has shown these limits to be suitable for gaging of screws having coating thickness up to and including .0003 inch on significant surfaces. Screws having heavier coatings, which fail to meet the wobble gaging requirements, will be stripped of finish and gaged for acceptance or rejection in the plain condition.

Wobble gaging fixtures such as illustrated above and appropriate cross recess master plug gages with handles and position indicators are available through screw manufacturers. Dimensions of

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points on master plug gages are, except for the diameters, tabulated herein, the same as those specified for respective penetration gage points on preceding page.

The screw to be gaged will be placed into screw holding chuck and oriented such that one set of recess wings is parallel to the upright back plate. The screw will be so positioned and the chuck will be tightened sufficiently to prevent any tilting of the screw in the chuck when taking wobble readings.

The position gage pointer and handle with the proper master plug gage for the recess size being checked will be positioned in the slot in the degree scale on top plate and the point of the gage inserted into the screw recess. It is essential that registry between the cross lines of pointer and the recess wings be maintained. To correct any misalignment, the chuck position lock screw is loosened, the chuck is rotated until registry is obtained, and the chuck is raised or lowered until the gage pointer is flush with the top of the degree scale. The chuck position lock screw is then tightened and the readings taken. The gage handle, with downward pressure applied, is moved from side to side until resistance is encountered and the total reading between points of travel of the gage pointer is recorded. The allowable angular wobble limits will not exceed the values as tabulated. Cross lines on gage pointer should be rechecked with plug gage wings to make certain cross lines and gage wings are registered on identical radials.

Recess Size Number	Gage Body Diameter, B		Maximum Allowable Total Wobble	
	Max	Min	Type 1 in	Type 1A mm
0	.135	.115	*	
1	.198	.178	15°	12°
2	.260	.240	12°	10°
3	.323	.303	10°	8 °
4	.385	.365	10°	8 °

* Value not currently available.

2.0 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.

3.0 TECHNICAL INFORMATION:

For further information related to the technical content of this specification, contact:	**Suppliers may purchase controlled copies of this specification by contacting:**
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