

NAVISTAR, INC.		
Material, Parts, and Process Specifications (MPAPS)		NUMBER: MPAPS DT-15
		Former Designation: CEMS DT-15
TITLE: TEST FOR HOSE INSERTION FORCE		CURRENT REV No.: 1703
		DATE: Mar. 2017
WRITTEN/REVIEWED BY: M. Ghaddar	APPROVED BY: R. Goluch	SUPERSEDES: February 2013
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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 SCOPE

Test method to determine the push on force for all Navistar rubber hoses under 30 mm inside diameter. This test is valid at 23° C ± 5° C.

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 REFERENCE DOCUMENTS

Unless otherwise specified the latest issue of all reference standards shall apply. The following specifications and standards are referenced in this specification.

- NAVISTAR MPAPS F-1
- NAVISTAR MPAPS B-50

4.0 APPARATUS

4.1 The fitting(s) used in the production assembly of the hose being tested. Alternately, a mandrel representing the maximum tolerance dimensions of the appropriate sized MPAPS F-1 fitting to be employed with the tested hose can be used. Fittings need to be fabricated so that they can thread into the load cell.

4.2 Load cell capable of measuring peak load with a minimum resolution of ± 0.5 lbf. The load cell should be mounted firmly either in a vice or in fixture parallel to the floor, see Figure 1.

5.0 MATERIALS

5.1 The hose to be tested conditioned at room temperature for at least 4 hours.

5.2 Hose Joint Lubricant – use the lubricant currently used in the assembly plants where this hose is assembled.

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6.0 PROCEDURE

6.1 Cut sample hose to between 250-280 mm (9.843-11.024 in) in length. All hoses must be cut to with a maximum allowable perpendicularity of ± 0.5 mm (.020 in).

6.2 If testing the hose in the lubricated condition, apply a thin layer of lubricant to both the inside of the hose and the fitting.

6.3 Using both hands insert the hose over the fitting. Whatever motion is most natural and that uses the lowest force should be used to assemble the hose. Wiggling motions and non-right angle assembly motions are encouraged, if they are the lowest force method to assemble the hose. (When inserting at an angle, make sure that the connector edge won't cause any damage to the hose interior – adjust angle of insertion as needed.)

6.4 Record the peak force after each hose assembly.

6.5 If a lubricant is used make sure to wipe off and dry all surfaces before the next assembly run.

6.6 This test must be run twice using two different people. Each person must perform at least 5 runs in the dry and lubricated condition (if tested). It is permissible to test both ends of the hose so long as each side is only tested once.

7.0 REPORT

7.1 Hose tested and it's ID (Ideally hose ID's should be measured by the hose supplier using a no-touch laser system)

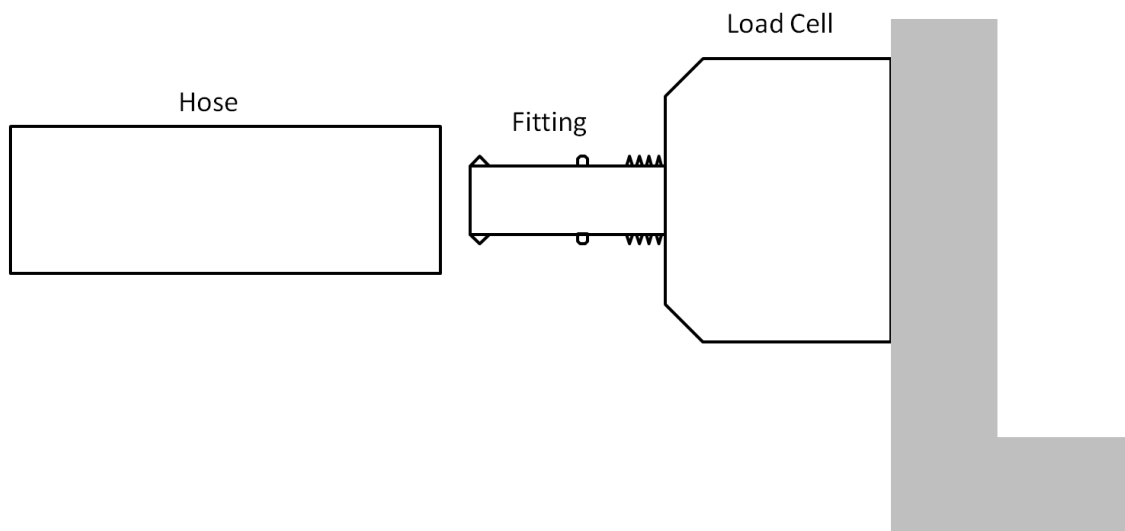
7.2 Fitting part number (if applicable), specification the fitting was built to, measured OD of fitting's sealing barb, measured OD of the fitting, and clamp land length.

7.3 Assembly lubricant used (if applicable)

7.4 Assembly temperature

7.5 Peak force for each sample

FIGURE 1: DIAGRAM OF AN INSERTION FORCE TEST SET-UP



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