

NAVISTAR, INC.		
Material, Parts, and Process Specifications (MPAPS)		NUMBER: MPAPS F-6036
		Former Designation: TMS-6036
TITLE: Air Brake Hose and Hose Assemblies, Permanent Fittings, Type A		CURRENT REV No.: 1412
		DATE: Dec. 2014
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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>		
Change Notice: Changed to new MPAPS format; editorial changes.		

1.0 APPLICATION

This specification covers reinforced hose and hose assemblies with permanently attached end fittings for use in the air brake system.

2.0 SCOPE

This specification covers general, property and performance requirements, designation on drawings, quality, source approval and quality control, and approved sources.

2.1 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 referenced standards shall apply. The following Specifications, Standards, and Regulations are referenced in this specification.

Quality System Standard ISO 9001 or TS-16949	NAVISTAR MPAPS A-40	ASTM D 395
NAVISTAR Engineering Design Std A-16	NAVISTAR CEMS C-3	ASTM D 622
CFR Title 29, Part 1910	NAVISTAR MPAPS B-50	SAE J246
NAVISTAR Manufacturing Std. MS-D-13	FMVSS 106	SAE J1402
NAVISTAR MPAPS A-0, Pt. I	ASTM D 3395	
NAVISTAR MPAPS A-0, Pt. II	ASTM D 380	

4.0 REQUIREMENTS

Product supplied to the requirements of this specification shall meet all requirements of FMVSS 106 and SAE J1402 for Type A Hose.

4.1 Hose Construction

The hose consists of a suitably blended ethylene-propylene-diene-terpolymer (EPDM) tube suitably reinforced with polyester textile fabric and EPDM cover.

4.2 Fittings - Reference SAE J246

The hose fittings shall be permanently attached with a brass interior (the metal exposed to the interior air). The exterior components (nut and cuff) may be brass or steel.

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4.2.1 Minimum Material Requirements

4.2.1.1 Brass

For bar or extruded stock: C36000 (Half hard), C34500, or C35000 per CEMS C-3.

For forgings: C37700 per CEMS C-3.

4.2.1.2 Steel

Shall meet requirements of Code 0-115 per MPAPS A-0, Part II

Flareless type ferrules will be made from steel 1008, 1010, 1112, or 12L14 per MPAPS A-0, Part I, and case hardened to Class 3 or Class 3A per MPAPS A-40, Section A.

4.3 Paint Mask

All hose assemblies provided to NAVISTAR production facilities shall have a removable paint mask covering the entire length of exposed hose.

4.4 Dimensions And Tolerances

The dimensions and tolerances of hose and hose assemblies shall conform to SAE J1402 for Type A hoses.

4.5 Property And Performance Requirements

Hose and hose assemblies shall meet the requirements of FMVSS 106 and SAE J1402 for Type A hose, and additional requirements of this specification. All tests shall be performed in accordance with ASTM D 380 and/or ASTM D 622 unless otherwise indicated.

4.5.1 Original Properties

	TUBE AND COVER REQUIREMENTS
Tensile Strength, MPa, min	7.0
Elongation, %, min.	200
Durometer, Shore A	70 - 85
Cold Flexibility (Tube and Cover): -40° C (-40° F)	Shall not crack, check, or break
Compression Set (Tube and Cover): ASTM D 395, Method B, 22 hours at 100° C	40% maximum
Dynamic Ozone Resistance: ASTM D 3395 Method A, 100 pphm, 100 hours	No cracks visible at 7X magnification
Adhesion (minimum)	1.4 Nm/m (8 lbf/in)

4.5.2 Heat Aged Properties

4.5.2.1 Method

Age material and hose assemblies for 168 hours at 100 C (212 F) prior to test. Hose assemblies shall be tested in the same manner as required in SAE J1402 "High Temperature Resistance".

4.5.2.2 Required

Tensile Strength	80% minimum retention
Elongation	50% minimum retention
Hardness	10 points maximum change
Burst	900 psi minimum

There shall be no cracking, charring, or disintegration after straightening and the hose shall meet the "Proof Pressure" requirements of SAE J1402.

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