

NAVISTAR, INC.		
Material, Parts, and Process Specifications (MPAPS)		NUMBER: MPAPS P-9565
		Former Designation: TMS-9565
TITLE: Truck Door Trim Material, Performance, and Durability Requirements		CURRENT REV No.: 1402
		DATE: Feb. 2014
WRITTEN/EDITED BY: Materials Engineering	APPROVED BY: Materials Engineering	SUPERSEDES: TMS-9565 – October 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>		
Change Notice: Major content revision and update to new MPAPS format.		

1.0 APPLICATION

This specification covers requirements for the complete door trim assembly including material, durability, noise, serviceability, and design criteria.

2.0 RESTRICTED CHEMICAL SUBSTANCES

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 TMS-9516
CFR Title 29, Part 1910	AWS D1.1
NAVISTAR Manufacturing Std. MS-D-13	AWS D1.2
NAVISTAR TMS-6505	AWS D1.3
NAVISTAR MPAPS B-50	AWS G1.2M/G1.2
NAVISTAR MPAPS D-28	AWS B2.4
NAVISTAR MPAPS DT-19	NAVISTAR TMS-7028
NAVISTAR TMS-7113	AATCC Test Method 8
NAVISTAR CEMS DT-10	VA PR 008
NAVISTAR MPAPS L-6023	
NAVISTAR TMS-7125	
NAVISTAR TMS-9009	

4.0 MATERIAL REQUIREMENTS

4.1 General Material Requirements

4.1.1 Molded Plastics – The most common plastic door trim material requirements are listed below. Plastic door trim resin should meet one of the following material specs as a minimum. Exceptions require approval from Navistar Materials and Engineering groups. Color, grain, and finish to be specified on the drawing by Navistar Design.

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4.1.1a: Pull cup material: ASA, A2 A46 A64 C10 DF1150 K48 M24 R2150 S90 U YA1800 AC1, per NAVISTAR MPAPS D-28.

4.1.1b: Plastic door trim: PP, TEO, or TPO, A46 A64 C10 K23 M20 R240 SA120 U YA3600 AC1, per NAVISTAR MPAPS D-28.

4.1.2 Cloth Insert – All woven and cloth materials shall meet TMS-7113 Type P Woven or Knit Universal Fabric, Interior Trim Part.

4.1.3 Material Insert Substrate – All insert and substrate material shall meet TMS-7125, Type 2.

4.1.4 Painted Metallic Parts - Unless otherwise specified, metallic components shall be painted NAV0004 Black, Class IIIA, per TMS-9009.

4.1.5 Acoustic Foam – All acoustic insulation shall meet TMS-6505, TYPE II, Grade B.

4.2 Adhesion and Joining Requirements

4.2.1 Welds

4.2.1.1 Spot welds shall comply with TMS-9516.

4.2.1.2 Non-resistance welds will comply with the applicable American Welding Society (AWS) standard: AWS D1.3 or D1.1 for steel and AWS D1.2 for aluminum.

4.2.1.3 Plastic welds including but not limited to: sonic welds, ultrasonic welds, heats staking, etc shall comply with AWS G1.2M/G1.2:1999 (R2010) or AWS B2.4:2012

4.2.2 Adhesives – All adhesive bonded trim must meet TMS-7028.

4.3 Component Level Material Requirements

4.3.1 Interior Part Performance Requirements (MPAPS DT-19): All materials in the door trim shall be tested to the procedures and requirements called out in NAVISTAR MPAPS DT-19. Navistar Engineering shall be contacted prior to testing to confirm testing locations and data requirements.

4.3.2 Rubbing and Wear Test Requirements (CEMS DT-10)

4.3.2.1 Procedure

Test the part following procedure outlined in CEMS-DT-10

4.3.2.2 Required

The white cheesecloth shall have an AATCC rating better than class 4 on the chromatic scale (using AATCC test method #8). There shall be no surface discoloration or transfer of color to the cloth.

4.3.3 Over-Mold Adhesion Twist Retention Requirements (MPAPS L-6023)

4.3.3.1 Application

Handle

4.3.3.2 Procedure

MPAPS L-6023 section 4.2.8 for over mold adhesion to bar

4.3.3.3 Required

The minimum applied torque required to break the material free of the insert shall be 20.4 ± 0.3 Nm (15 ± 0.2 ft lb).

4.3.4 Mildew Odor Requirements

4.3.4.1 Procedure

Place a 50 mm X 50 mm sample of each proposed material in a container. Add enough distilled water to saturate the bottom 10 mm of sample. Close the container tightly. Expose the container to 38 +/-2 deg C for 14 days.

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4.3.4.2 Required

The specimen shall be inspected for mildew growth and related odor. No mildew growth or related odor is permitted.

5.0 DURABILITY AND PERFORMANCE REQUIREMENTS

5.1 Road Load Durability

5.1.1 Procedure

The door trim assembly shall be subjected to road input accelerations by a shaker test simulating the life of the vehicle. The procedure shall be defined by Navistar Engineering and tested at Navistar.

5.1.2 Required

The door trim must withstand the shaker test without exhibiting loss of retention, damage, or loosened parts. The maximum allowed effect of any part of the door trim is 1mm offset from the start position at specified points to be determined by test and product engineer. Components must remain mounted upon completion of test. Threaded fasteners must not exhibit any backing out. Door trim BSR generated sound must be less than 60dB at beginning of test and less than 65dB at conclusion of test.

5.2 Door Slam Load Durability

5.2.1 Procedure

Slam the door at 1.5 m/s (4.9 ft/ sec) with the complete door assembly and cab interface present. Cycle the following four phases for three full cycles, for a total number of slam cycles of 260,000.

Phase	Environment	Cycles
1	-40 °C	13,000
2	Ambient	34,667
3	85 °C	13,000
4	40 °C, 95% RH	26,000

5.2.2 Required

While mounted on a door, the door trim panel must withstand the following cycle without exhibiting loss of retention, visible damage, cracking on A or B side surfaces, or loosened parts. The maximum allowed effect of any part of the door trim is 1mm offset from the start position at specified points to be determined by Navistar Engineering. Components must remain mounted upon completion of test. Threaded fasteners must be marked before the test and not exhibit any backing out.

5.3 Pull Handle Durability

5.3.1 Procedure

While mounted on a door, apply a 40 lbf horizontal load to the inboard face of the pull cup or pull handle using a cushioned right angle bracket that is 90mm (3.5 inches) wide. This test can be completed as part of the door slam test cycle. Use a cycle rate of 10-cycles/ minute unless testing is done concurrently with the slam test cycle. Discuss and clarify exact procedure with Navistar Engineering prior to testing if two tests are to be combined.