

NAVISTAR, INC.		
Material, Parts, and Process Specifications (MPAPS)		NUMBER: MPAPS P-9545
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Cab Leakage – Testing Requirements		CURRENT REV No.: 1704
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1.0 APPLICATION

This specification describes engineering requirements for the performance of air and water leakage testing of finished cabs assembled onto chassis.

2.0 SCOPE

This specification covers equipment and general testing procedures, repair procedures, and reporting of tests results.

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
CFR Title 29, Part 1910

NAVISTAR MPAPS B-50
NAVISTAR MPAPS P-9543

4.0 REQUIREMENTS

Many methods of body leak detection are available. Two commonly used at Navistar facilities are listed below. All test methods suffer from various levels of test errors. Air leak methods have a tendency to have a high false-positive rate – shows more leaks than would be noticeable in use. And water leak methods suffer high false-negatives – does not show leaks that can occur in the field. It is important that leaks are thoroughly investigated during development and corrected. It is also important that production processes are regularly tested and monitored and that leaks identified are quickly communicated to parties responsible for correcting them.

4.1 Air Leak Test Method

4.1.1 Equipment

4.1.1.1 Blower motor calibrated on a flow bench, certified by Navistar Engineering, with an air flow rate vs voltage calibration curve at 0.25 kPa (1.0 inch water) pressure.

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4.1.1.2 A window mounting plug suitable for the body being tested. It shall have a sealed mounting for the blower scroll and a pressure port.

4.1.1.3 A variable voltage, DC power source.

4.1.1.4 A digital voltmeter, accurate to ± 0.01 volts in the range of 1 - 20 volts.

4.1.1.5 A pressure transducer with a digital readout, accurate to ± 0.0025 kPa (± 0.01 inches of water) at 0.25 kPa (1.0 inches) of water.

4.1.1.6 A solution of water and liquid detergent of approximately 20:1.

4.1.1.7 A suitable liquid spray apparatus.

4.1.1.8 A vehicle diagram or picture for that cab model tested, showing exterior surfaces with seams and joints.

4.1.1.9 Masking tape.

4.1.1.10 A camera.

4.1.2 Procedure

4.1.2.1 Mount plug, blower and pressure transducer into door window opening.

4.1.2.2 Seal the mounting with the masking tape.

4.1.2.3 Close the fresh air duct and check all other windows and vents to be sure that they are closed.

4.1.2.4 Turn on blower and adjust voltage to obtain a stable 0.25 kPa (1.0 inch of water) pressure.

4.1.2.5 Measure and record the voltage (initial) applied to the blower (measure at the blower).

4.1.2.6 Spray exterior seams and joints with the water and detergent solution.

4.1.2.7 Record on the vehicle diagram areas where bubbles are generated and document with photograph.

4.1.2.8 Based on the rate of bubble generation, note whether each leak is minor, significant, or major.

4.1.2.9 Repair significant and major leak points to the extent practical and readjust blower voltage to obtain a stable reading of 0.25 kPa (1.0 inch of water) pressure and record voltage. (Use tape for test purposes and after test is complete, make permanent repairs.)

4.1.2.10 Report results of testing.

Acceptant Criteria = Reference applicable DRD for acceptance criteria.

4.1.3 Air Leak - Test Report

A report will be prepared, following the format described in MPAPS P-9543, and submitted to engineering for inclusion in the engineering tracking system. (See Test Report Section).

4.2 Water Leak Test Method

The water leak test should be performed on a regular basis to ensure that changes to the sealing processes do not create water leaks which may not be readily detected by the air leak test. It should also be used on units and/or in cases that require more extensive repair work as identified by the air leak test.

4.2.1 Equipment

4.2.1.1 Water test facility - The test facility may be set up differently at each assembly plant. The facility must be capable of applying large quantities of water over the entire exterior surface of the cab. The facility must be capable of directing the water flow to provide adequate testing of special areas such as the windshield, roof, etc. The test facility and water spray/application methods will be approved on a plant-by-plant basis by Engineering and Reliability.

4.2.1.2 Light source for cab inspection.

4.2.1.3 Finished cab/unit with as much trim removed as possible.