



Metal Fuel Tanks Hydraulic Test

1 Introduction

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. To evaluate the ability of all types of diesel and gasoline primary and secondary fuel tanks to withstand hydraulic pressures.

1.2 Applicability. This standard applies to tanks and reserve tanks for liquid fuel of any motor vehicle intended for use on the road, with or without body work, having at least four wheels and a maximum design speed exceeding 25 km/h, and its trailers, with the exception of vehicles which run on rails, agricultural tractors and machinery and public works vehicles.

1.3 Remarks. This procedure can be used to show compliance with European or China regulations:

- 70/221/EEC
- GB 18296-2001

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

70/221/EEC GB 18296-2001

2.2 GM Standards/Specifications.

None

3 Resources

3.1 Facilities. The test facility that runs this procedure must have equipment that can maintain a specific tank pressure.

3.1.1 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.2 Alternatives. Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

3.2 Equipment. A fuel tank holding fixture is used for mounting the tank in simulated vehicle position.

3.2.1 Equipment that has the capability to maintain the fuel tank under test to a pressure equal to double the working pressure, or not less than a pressure of 30 kPa (120 in of water (H₂O)) above the working pressure, for 1 minute (Economic Commission for Europe (ECE)) or 80 kPa for 30 s (China).

Note: All instrumentation is to be calibrated as required. Record instrumentation details and date of calibration on Data Sheet A1 (Appendix A), unless the information is otherwise preserved in the testing laboratory records.

3.3 Test Vehicle/Test Piece. Fuel system under test includes the fuel tank and all attached accessories.

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3.4 Test Time.

Calendar time: Less than 1 day

Test hours: Not applicable

Coordination hours: Not applicable

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Lab test personnel with fuel system test experience.

4 Procedure

4.1 Preparation. Install the fuel tank onto the fuel tank holding fixture. Close all fuel system openings.

4.2 Conditions. See 3.2.1.

4.2.1 Environmental Conditions. Not applicable.

4.2.2 Test Conditions. Deviations from the requirements of this standard shall have been agreed upon. Such requirements shall be specified on component drawings, test certificates, reports, etc.

4.2.3 During this test, the fuel tank shall not leak or crack; however, it may be permanently deformed.

4.3 Instructions.

4.3.1 With the fuel tank in simulated vehicle attitude, completely fill the fuel tank with water. Replace the fuel cap.

Note: Tank is completely full when water is observed standing in the fuel filler neck.

4.3.2 Gradually raise the tank gauge pressure to the pressure required per paragraph 3.2.1, by placing air pressure source at a convenient fuel tank outlet (e.g., fuel feed line, fill pipe inlet, etc.)

4.3.3 Maintain this fuel tank pressure for 1 minute.

4.3.4 Visually inspect the fuel tank for any cracks or leaks. Record these observations on Data Sheet A2 (Appendix A).

5 Data

5.1 Calculations. Not applicable.

5.2 Interpretation of Results. Not applicable.

5.3 Test Documentation. Record all test information on the supplied data sheets. Posttest observations include comments about any cracks, fuel leaks, unusual damages or other observations, and are to be recorded on Data Sheet A3 (Appendix A).

6 Safety

This standard may involve hazardous materials, operations, and equipment. This standard does not propose to address all the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

7 Notes

7.1 Glossary. Not applicable.

7.2 Acronyms, Abbreviations, and Symbols.

ECE Economic Commission for Europe

H₂O Water

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