

Economic Commission for Europe

Inland Transport Committee

Working Party on the Transport of Dangerous Goods

Joint Meeting of the RID Committee of Experts and the
Working Party on the Transport of Dangerous Goods

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Item 2 of the provisional agenda

Tanks

8 January 2019

Tanks: Testing pressure relief valves of LPG road tankers at intermediate inspections

Transmitted by the Government of the United Kingdom

Summary

- Executive summary:** This paper provides information on the preliminary findings of the LPG road tanker Pressure Relief Valve test programme being undertaken in the United Kingdom. It is anticipated that, once completed, this evaluation will contribute to the evidence base that will allow inspection bodies at intermediate inspections to justify a check of the documentation or the marking of pressure relief valve set pressures (as permitted by EN14334:2014) rather than physically testing such valves (as required by EN12972:2007 and 2018).
- Action to be taken:** None. These preliminary findings are provided for information only.
- Related documents:** Informal documents INF.35 and INF.46 (paragraph 39) of the September 2017 session.

Introduction

1. Under agenda item 17 at the meeting of the Working Group on Tanks in September 2017, the United Kingdom provided information about the start of a test programme on pressure relief valves of LPG road tankers. At that meeting the United Kingdom advised that the results of the test programme would be shared when they became available. This paper provides the preliminary results from the test programme, undertaken over a period of 18 months.
2. Clause 5.6.1 of EN14334:2014 permits the opening pressure marking on the valve or associated documentation to be checked at intermediate inspections as an alternative to pressure testing, which is required by clause 5.10.3 of EN12972:2007 and clause 5.10.4.3 of EN12972:2018. To ensure safety would not be compromised in using this alternative provision, the United Kingdom requires inspection bodies to provide sufficient evidence to convince the United Kingdom Accreditation Service that doing so would be justified.

Accordingly, a test programme was devised to determine the reliability and effectiveness of pressure relief valves between periodic inspections.

3. Under this test programme, each pressure relief valve that has been tested has been subjected to three checks of the pressure at which the valve opens and reseals. The results from these tests have been compared to the hydraulic test pressure for the tanks to which they were fitted and recorded together with any relevant observations from the testing service.

Preliminary results of the test programme

4. To date 145 pressure relief valves, principally from a single manufacturer, have been tested under the programme and these represent approximately 16% of the valves fitted to LPG road tankers in Great Britain. All valves were of the spring-loaded type and are of a generic pop-action design. 137 were fully internal and 8 were of the semi-internal type.

5. Of these, 144 pressure relief valves opened at a pressure at or above their marked set pressure, and in all cases, this was below the hydraulic test pressure of the tanks to which they were fitted. The remaining pressure relief valve opened and resealed at a pressure below its marked set pressure and this is thought to be due to the valve being incorrectly set prior to installation. To date no performance differences have been identified between the fully internal or semi-internal type valves.

6. Significantly, from a safety perspective, the results indicate that all pressure relief valves evaluated under this programme would have provided overpressure protection, and that there is reason to be optimistic that their performance is not likely to deteriorate between periodic inspections.

Next steps

7. The test programme will continue until such time that there is sufficient data on which to base a decision as to whether pressure relief valves should continue to be physically tested at intermediate inspections or checks allowed on the basis of marking on the valve or of the associated documentation. A more detailed analysis of results will be carried out once more data has been obtained and this will be shared when it becomes available.
