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IS 11865 (2006): Automotive vehicles - Method of conducting waterproofing test [TED 4: Automotive Braking Systems]



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भारतीय मानक

स्वचल वाहन — जलसहता परीक्षण पद्धति
(पहला पुनरीक्षण)

Indian Standard

**AUTOMOTIVE VEHICLES — METHOD OF
CONDUCTING WATERPROOFING TEST**

(First Revision)

ICS 43.020

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BHADUR SHAH ZAFAR MARG
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FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Automotive Braking Systems, Vehicle Testing and Performance Evaluation Sectional Committee had been approved by the Transport Engineering Division Council.

The fittings, doors, windows and the construction of the body of an automotive vehicle shall be such that there is no ingress of water into it during rainy season. This standard gives procedure to conduct water proofing test on automotive vehicles by creating test conditions similar to those in rainy season to which an automotive vehicle is likely to be exposed. This procedure intends to provide for a uniform practice to assess water proofing of vehicles.

The standard was first published in 1986. This revision has been taken up to update the test procedure and to include various terms used for clear interpretation, to give details of test facility indicating types of nozzles used, distance between them, flowrate and pressure of water, etc, used during the test.

*Indian Standard***AUTOMOTIVE VEHICLES — METHOD OF
CONDUCTING WATERPROOFING TEST***(First Revision)***1 SCOPE**

This standard prescribes the procedure for conducting waterproofing test on all automotive vehicles with enclosed compartments for carriage of passenger/goods, by creating test conditions similar to those in rainy seasons to which an automotive vehicle is likely to be exposed to.

NOTE — This standard is not applicable to the part of the vehicle covered with canvas.

2 TERMINOLOGY

The following terminologies shall be used to differentiate different types of water entry.

2.1 Seepage — Few droplets of water entering the vehicle through any of the doors or glasses and not wetting the floor and finding its way out along the inner walls.

2.2 Wetness — Wetting of the vehicle trims and walls of the vehicle without formation of the droplets.

2.3 Leakage — Droplets of water entering the vehicle through any of the fittings, doors, windows or glasses, plugs or grommets in floor, etc, in the form of a flow and wetting the floor.

3 TEST FACILITY

A test facility shall be set up to make an artificial shower on the test vehicle. It shall consist of a concrete floor with adequate facility to drain-out the water. Over this floor a super structure of pipe network shall be built. The super structure shall be of adequate height, width and length to accommodate the test vehicle underneath it. The size of superstructure shall permit a clearance of 0.5 to 1 m all around the vehicle. The superstructure shall be fitted with spray nozzles on top, and both sides. The nozzles used shall be of full cone and solid type having a spray angle of 60° and capable of square spray

pattern for maximum surface coverage as shown in Fig. 1(A) and Fig. 1(B). The pitch of these nozzles shall be 400 mm in both the directions. The flowrate per nozzle shall be 15 lpm \pm 15 percent and the water pressure at the nozzle shall be 200 kPa \pm 15 percent. A typical layout of the facility is shown in Fig. 2.

4 PREPARATION OF THE VEHICLE

4.1 The test vehicle shall be fitted with all the normal lamps conforming to the manufacturer's recommendations.

4.2 All doors, windows and ventilators of the test vehicle shall be closed. It shall also be seen that all the window and door glasses, wind screen, plugs or grommets on floor, etc, are free of cracks which may cause leakage of water inside the test vehicle.

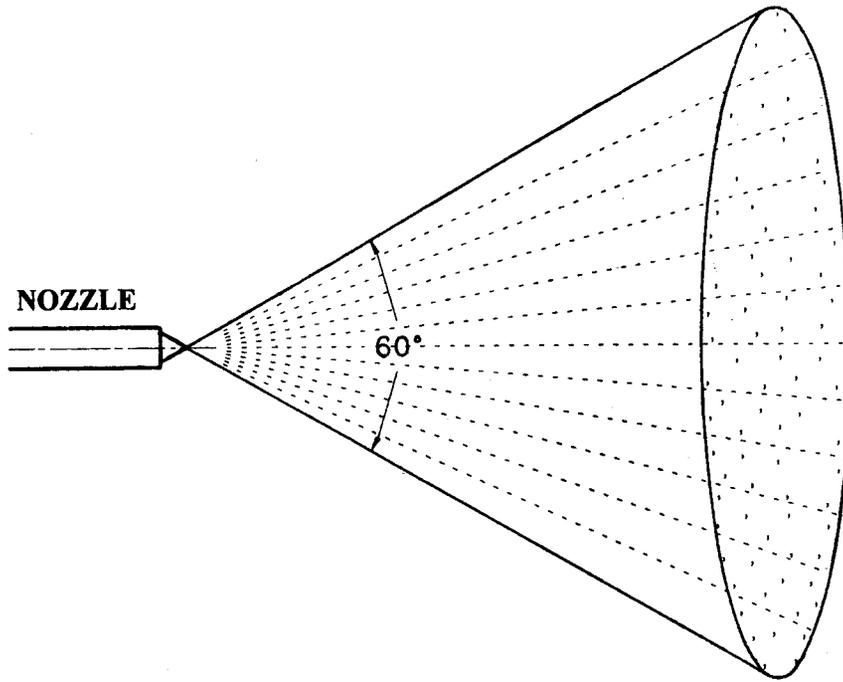
5 TEST PROCEDURE

5.1 The test vehicle shall be placed stationary after the preparation as defined in 4 on the test site and shall be subjected to the artificial shower for 15 min. The engine shall be kept idling, wipers in action and head lights on.

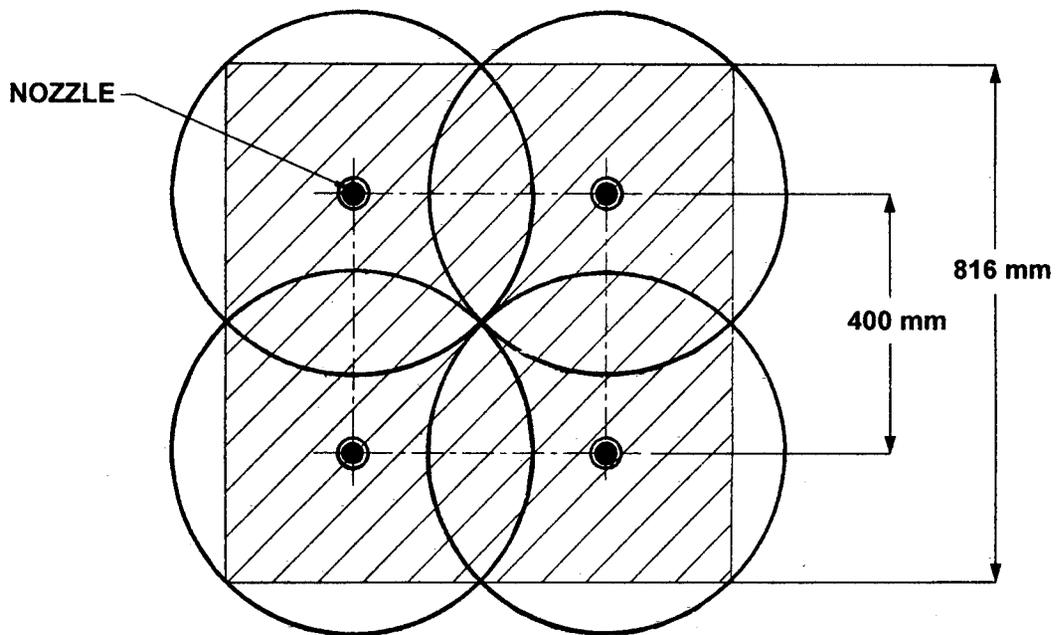
5.2 Water entry inside the vehicle shall be observed and its type as defined in 2 shall be recorded. Water entry inside the engine compartment, luggage compartment and in the electrical fittings like head lamps, fog lamps, indicator lamps, side marker lamps, etc, shall also be recorded.

6 ACCEPTANCE CRITERIA

There shall be no water entry of any type into any of the enclosed volume such as compartment for driver/crew/passengers, boot (luggage compartment) and enclosed loading compartment or load body. There shall be no water ingress into headlamps, fog lamps, indicator lamps, side marker lamps, etc.



1A Nozzle (60°) of Full Cone and Solid Type Water Spray



Nozzle Angle = 60°
Distance Between Surface and Nozzle = 0.5 m

1B Typical Spacing for Nozzles (60°) for Maximum Surface Coverage at 500 mm Distance

FIG. 1 NOZZLE (60°) AND SPACING FOR MAXIMUM SURFACE COVERAGE

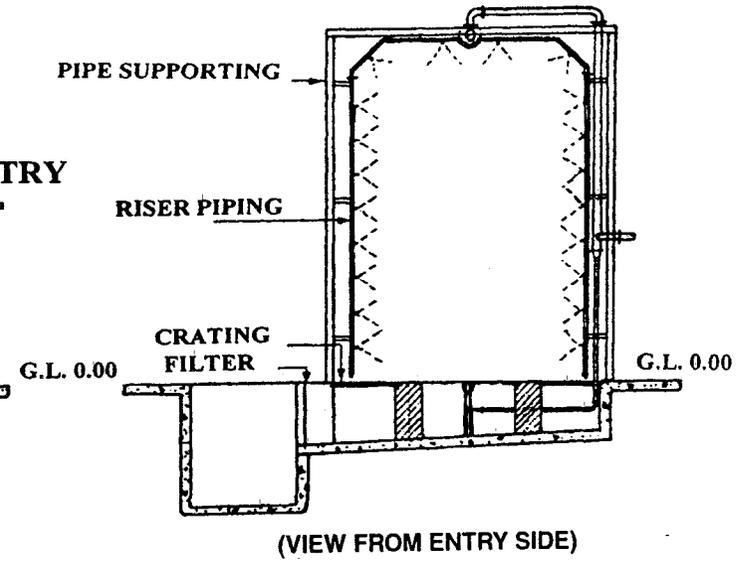
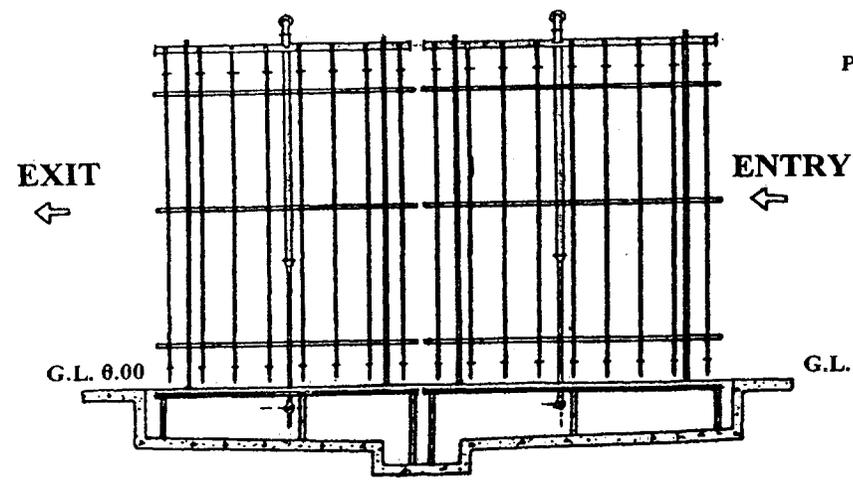
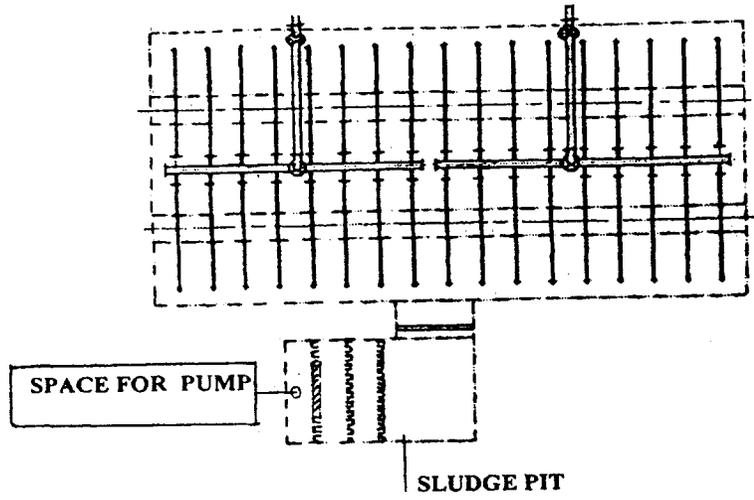


FIG. 2 TYPICAL LAYOUT OF TESTING FACILITY

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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