Automotive parts - Submergence test methods for power window switches

1. Scope

This standard specifies the test methods for evaluating the operation of power window switches (hereinafter referred to as "switches") when submerged in water for applications in automotive 12 V systems.

In the case of functional switches capable of opening and closing multiple windows, this standard is applied to only the window located right beside the seat at which the switch is installed. (For example, the driver's seat switch is tested for operation of the driver's seat window.)

2. Normative reference

The following standard, when referred to this standard, constitutes a part of the specifications of this standard. As required, the latest version of the applicable standard (including addenda) shall be applied.

JIS Z8703 Standard atmospheric conditions for testing

3. Definitions

Definition and main terms used in this standard shall be as follows.

3.1 Test voltage

The voltage applied to the switch when operating while submerged.

4. Test conditions

Unless otherwise specified, the test location shall be kept at room temperature (20±15°C) and normal humidity (65±20 %) as specified in **JIS Z8703**.

Tests shall be conducted for each of the two types of water as shown in **Table 1**.

This water shall also be kept at room temperature.

Table 1 Test water

Type	Conditions
Salt water	3.5±0.5% concentration
Fresh water	Tap water

The number of samples under test shall be set upon mutual agreement by all concerned parties.

Documents
Document Sharing Hub

Full document details: JASO D406 2013

5. Test method

5.1 Test set-up

Test set-up shall be based on Figure 1.The load of the switch shall be adjusted so that the current is equivalent to the actual usage environment (i.e., the power window drive unit in the applicable vehicle).

The window opening direction of the switch must be clearly marked.

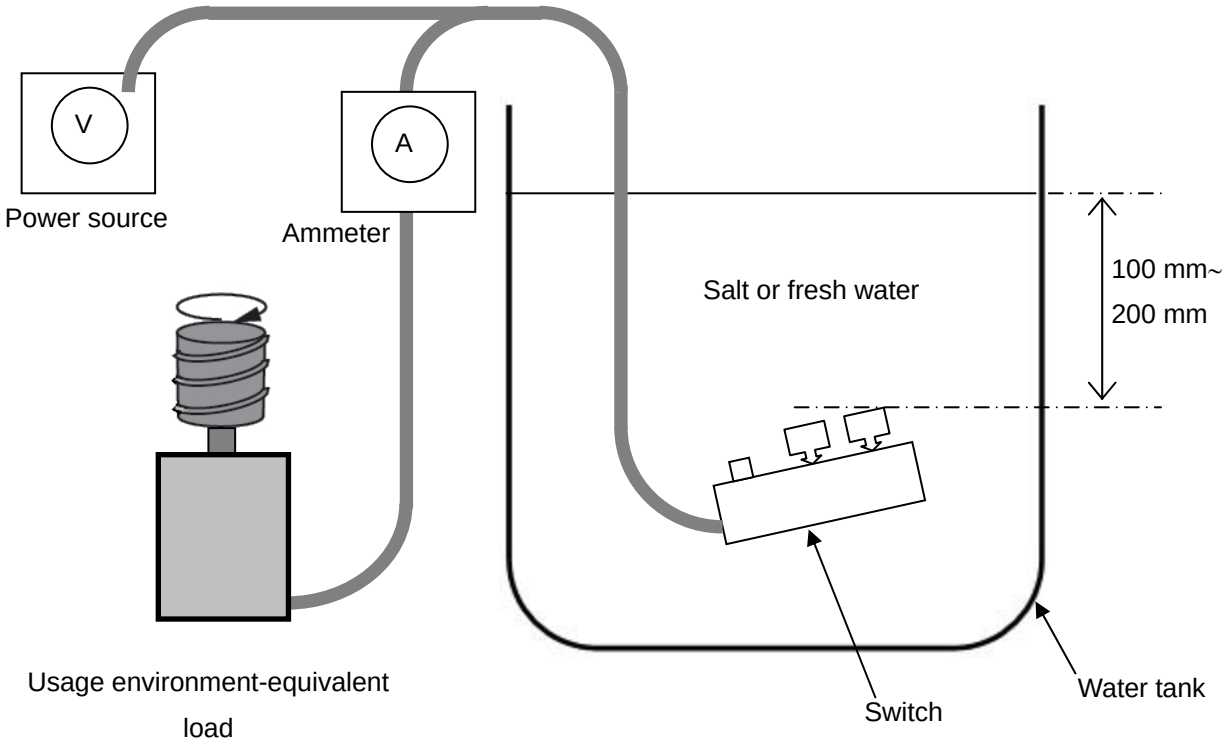

Figure 1 Switch submersion test arrangement (Example)

5.2 Switch test position

The switch shall be tested in the same position as when mounted in the actual vehicle. It is recommended to use a jig to ensure that the switch keeps the same position during the test.

5.3 Test procedure

5.3.1 Test voltage

The test voltage shall be set at 12±0.5 V.

5.3.2 Submersion method

After applying the test voltage, submerge the switch quickly to the specified depth (100 to 200 mm) while in the OFF state.

5.3.3 Switch function confirmation

Turn on the switch to the window open side once every minute. Confirm that current equivalent to the operating environment is applied from the switch to the usage environment-equivalent load over the time required to fully open the window. Although the necessary test time shall be determined by the mutual agreement of all concerned parties, it shall be set to maximum of five minutes after submersion.

In addition, if the switch is not operated as specified, check that current is not applied from the switch to the usage environment-equivalent load.

Documents
Document Sharing Hub
Full document details: JASO D406 2013