

TURN SIGNAL SWITCH

Foreword—This Document has not changed other than to put it into the new SAE Technical Standards Board Format.

1. Scope

2. References

2.1 Applicable Publications—The following publications form a part of this specification to the extent specified herein. Unless otherwise specified, the latest version of SAE publications shall apply.

2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA. 15096-0001

SAE 575f—Test Methods and Equipment for Lighting Devices and Components for Use on Vehicles Less Than 2032 mm in Overall Width

SAE J588e—Turn Signal Lamps Use on Motor Vehicles Less Than 2032 mm in Overall Width

SAE 910b—Hazard Warning Signal Switch

3. Definitions

3.1 Turn Signal Switch—A turn signal switch is that part of a turn signal system by which the operator of a vehicle causes the turn signal lamps to function.

3.2 Class A Turn Signal Switch—A Class A turn signal switch may be used on any vehicle but is intended for use on multipurpose passenger vehicles, trucks, and buses that are 80 in or more wide overall.

3.3 Class B Turn Signal Switch—A Class B turn signal switch is intended for use in passenger cars, motorcycles, and multipurpose passenger vehicles, trucks, and buses of less than 80 in overall width.

4. Reference Standards

4.1 The following sections from SAE J575f (April, 1975) are a part of this standard:

Section B—Samples for Test

Section C—Lamp Bulbs

Section D—Laboratory Facilities

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- 4.2 Turn signal pilot indicators—See SAE J588c (September, 1970).

5. *Temperature Test*

- 5.1 To insure basic function, the switch shall be manually cycled for 10 cycles at design electrical load at: 75 ± 10 °F (24 ± 5.5 °C); $165 +0, -5$ °F ($74 +0, -2.8$ °C); $-25 +5, -0$ °F ($-32 +2.8, -0$ °C). This to be done after a 1 h exposure at each of these temperatures. The switch shall be electrically and mechanically operable during each of these cycles.

- 5.2 This same switch shall be used for the endurance test described in paragraph 6.

6. *Endurance Test Setup*

- 6.1 The switch shall be operated with the maximum design bulb load stated by the switch manufacturer with the flasher not included in the circuit. Failed bulbs shall be replaced during the test.

- 6.2 When the switch is provided with a self-canceling mechanism, the test equipment shall be arranged so that the switch can be turned off by the self-canceling mechanism. Provision shall also be made for manual canceling.

- 6.3 The test shall be set up to operate the switch for the prescribed number of cycles.

One cycle shall consist of the following sequence of positions: off, left turn, off, right turn, off.

The test requirement shall function within the following mechanical timing requirements at a cycle rate of 12–20 cycles/minute:

Travel time—0.1–0.5 s max (time from one position to the next position)

Dwell time—0.4 s min (in each position)

- 6.4 During the test the switch shall be operated at 6.4 V d-c for a 6 V system, 12.8 V d-c for a 12 V system, or 25.6 V d-c for a 24 V system, measured at the input termination of the switch. The power supply shall not generate any adverse transients not present in motor vehicles and shall comply with the following specifications:

- a. Output Current—Capable of supplying a continuous output current of the design load and inrush currents as required by the bulb load complement.

- b. Regulation

Dynamic—The output voltage shall not deviate more than 1.0 V from zero to maximum load (including inrush current) and should recover 63% of its maximum excursion within 5 ms.

Static—The output voltage shall not deviate more than 2% with changes in static load from zero to maximum (not including inrush current), and means shall be provided to compensate for static input line voltage variations.

- c. Ripple Voltage—Maximum 300 mV, peak to peak.

7. *Endurance Requirements*

- 7.1 Class A turn signal switches shall be capable of meeting the following endurance requirements:

- a. 165,000 cycles at 75 ± 10 °F (24 ± 5.5 °C).
- b. When the switch is provided with a self-canceling mechanism it shall be tested as follows: 155,000 cycles of self-canceling followed by 10,000 cycles of manual canceling.

- c. If the turn signal switch includes stop lamp circuitry, the stop lamp circuit shall be fed electrically for the first 100,000 cycles only.

7.2 Class B turn signal switches shall be capable of meeting the following endurance requirements:

- a. 100,000 cycles at $75 \pm 10^{\circ}\text{F}$ ($24 \pm 5.5^{\circ}\text{C}$).
- b. When the switch is provided with a self-canceling mechanism it shall be tested as follows: 95,000 cycles of self-canceling followed by 5000 complete cycles of manual canceling.
- c. If the turn signal switch includes stop lamp circuitry, the stop lamp circuit shall be fed electrically for the first 50,000 complete cycles only.

7.3 If the turn signal switch includes cornering light circuitry which is fed from the headlight switch, the cornering light circuit shall be fed electrically for the first 50,000 cycles only.

7.4 The voltage drop from the input terminal of each circuit to the lamp terminal of each circuit shall be measured at the beginning of the test and at intervals of 25,000 cycles.

This voltage drop shall not exceed:

- 0.25 V for 2 lamp load (or less) per side
- 0.30 V for 3 lamp load per side
- 0.35 V for 4 lamp load per side
- 0.40 V for 5 lamp load (or greater) per side

before, during, and after the endurance test.

If wiring is an integral part of the switch, the voltage drop measurement is to be made including 3 in of wire on each side of switch; otherwise, measurement is to be made at switch terminals. Care shall be taken not to include the voltage drop of other devices in the circuit.

8. Combination Turn Signal And Hazard Warning Signal Switches

8.1 The same combination switch shall be used for the test of each function. The turn signal switch function shall meet the requirements of this standard. The hazard warning signal switch function shall meet the requirements of SAE J910b (June, 1971).

8.2 The operating motion of the hazard warning signal switch function shall differ from the actuating motion of the turn signal switch function.

9. Notes—This document has been adopted by the Department of Defense. Any revisions must be coordinated with the Military preparing/coordinating activity. The responsible Military Agency is Military Coordinating Activity: Army - AT.

9.1 Marginal Indicia—The change bar (I) located in the left margin is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. An (R) symbol to the left of the document title indicates a complete revision of the report.

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