



TECHNICAL REPORT

J1055

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SERVICE PERFORMANCE REQUIREMENTS FOR
TURN SIGNAL FLASHERS—SAE J1055

SAE Recommended Practice

Report of Lighting Committee approved September 1973.

1. Scope—This recommended practice covers service performance tests, test procedures and requirements applicable to turn signal flashers. It is intended to supplement the engineering design standard SAE J590 to cover service performance requirements of turn signal flashers.

2. Test Conditions

2.1 Performance Test—Flashers shall be performance tested at the specific design load for fixed-load flashers, or at the minimum and maximum design loads for variable-load flashers, and in the mounting position (if necessary), as specified by the flasher manufacturer.

2.2 Durability Test—Flashers shall be durability tested at the specific design load for a fixed-load flasher, or at the maximum design load for a variable-load flasher, as specified by the flasher manufacturer.

2.3 Test Circuitry and Equipment Requirements—See SAE J823. The standard test circuit is shown therein.

3. Definitions

3.1 Lot—The term "lot" or "batch" shall mean inspection lot, that is, a collection of flashers from which a sample is to be drawn and tested to determine conformance with the acceptability criteria. Each lot shall consist of flashers of a single type manufactured at essentially the same time. Each flasher shall be coded externally to represent the period of manufacture by at least month and year.

3.2 Sample and Sample Size—A sample shall consist of individual flashers drawn from a lot, the individual flashers being selected at random without regard to their quality. The number of flashers in the sample is the sample size.

3.3 Flasher Characteristic—Value of a particular parameter of flasher operation, for example, flash rate, percent current "on" time, starting time, voltage drop.

3.4 Engineering Design Standard—Flasher characteristics as specified in SAE J590.

3.5 Zone—A prescribed range or set of values of a flasher characteristic other than that of the engineering design standard.

3.6 Zone Designation—Each zone shall be designated by the capital letters A, B, C in the order of increasing deviation of the zone from SAE J590.

3.7 Zone A—The range of values of a flasher characteristic which does not alter materially the safety-related aspect of turn signal indication.

3.8 Zone B—The range of values of a flasher characteristic which still provides an adequate safety-related aspect of turn signal indication.

3.9 Zone C—The range of values of a flasher characteristic which does not provide an adequate safety-related aspect of turn signal indication.

TABLE 1—STARTING TIME, s

Type	Turn Signal Lamp Load	SAE J590	Zone A	Zone B	Zone C
Normally closed	2	1.0 max			
Normally open	3 or more Design load(s)	1.25 max 1.5 max	1.7 max	2.0 max	> 2.0

TABLE 2—VOLTAGE DROP, V

Turn Signal Lamp Load	SAE J590	Zone A	Zone B	Zone C
2	0.40 max			
3	0.45 max	0.6 max	0.8 max	
4 or more	0.50 max			> 0.8

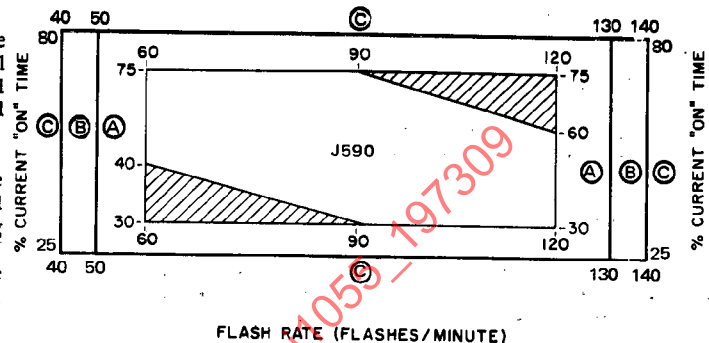


FIG. 1—FLASH RATE (FLASHES PER MINUTE) AND PERCENT CURRENT "ON" TIME CLASSIFICATIONS BY ZONES

3.10 Chance Occurrence—An unusual event.

3.11 Flasher Classification—Each flasher with characteristics outside of the requirements of SAE J590 shall be classified by the zone designation of the flasher characteristic which has the zone designation furthest from the requirement of SAE J590.

Flashers with all characteristics falling within the requirements of SAE J590 shall not be assigned a zone designation.

3.12 Average Laboratory Life—The average number of test hours a sample of flashers remains within SAE J590 engineering design standard or zones A and B. The average shall be based on the sample size tested.

4. Performance Testing

4.1 Select a random group of 32 flashers from the lot. Randomly select a sample of 10 flashers from the group. Submit each of the 10 units to all of the tests of paragraphs 4.2, 4.3, and 4.4.

4.2 Starting Time—The starting time of a normally closed type flasher is the time to open (turn off) after the voltage is applied. The starting time of a normally open type flasher is the time to complete the cycle (close the contacts and then open the contacts) after voltage is applied. The test shall be made in an ambient temperature of $75 \pm 10^\circ\text{F}$ ($24 \pm 5.5^\circ\text{C}$) and the power source for the test circuit adjusted as specified in SAE J823. For fixed-load flashers, the test shall be made with the specific ampere design load connected. For variable-load flashers, the test shall be made with the minimum and maximum design load connected. Starting time shall be based on a single start. The measured starting times shall be classified by zones in accordance with Table 1.

4.3 Voltage Drop—The test shall be made in an ambient temperature of $75 \pm 10^\circ\text{F}$ ($24 \pm 5.5^\circ\text{C}$) in the standard test circuit, and the power source for the test circuit adjusted as specified in SAE J823. For fixed-load flashers, the test shall be made with the specific ampere design load connected; and for variable-load flashers, the test shall be made with the maximum design load only. The lowest voltage drop across the flasher shall be measured between the input and the load terminals at the flasher and during the "on" period after the flasher has completed a minimum of five consecutive cycles. Measured voltage drops shall be classified by zones in accordance with Table 2.

4.4 Flash Rate and Percent Current "On" Time—Fixed-load flashers shall be tested with the specific ampere design load connected, and variable-load flashers shall be tested with the minimum design load connected and with the maximum design load connected. Flash rate and percent current "on" time shall be measured after the flashers have been operating for five consecutive cycles and shall be an average of at least three consecutive cycles. The flashers shall be tested over