Flasher Test Equipment — SAE J823c

SAE STANDARD

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SOCIETY OF AUTOMOTIVE ENGINEERS, INC.

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FLASHER TEST EQUIPMENT—SAE J823c

SAE Standard

Report of Lighting Committee approved April 1962 and last revised January 1975.

1. SCOPE—This standard specifies the test procedure, test circuitry, and instruments required for measuring the performance of flashers.

2. LABORATORY FACILITIES—The laboratory shall be equipped with all of the facilities required to make the tests in this specification, in accordance with established laboratory practice, including the following:

2.1 Means shall be provided to maintain ambient temperatures of -25° ± 5°F (-32 ±3°C), 0±5°F (-18 ±3°C), 75 ± 10°F (24 ± 5.5°C), 125 ±5°F (52 ± 3°C), and 145 ± 5°F (63 ± 3°C). The chamber atmosphere shall be air.

2.2 POWER SUPPLY—PERFORMANCE TESTS—The power supply for testing performance requirements shall not generate any adverse transients not present in motor vehicles and shall comply with the following specifications:

2.2.1 Output Voltage—Capable of supplying to the input terminals of the standard circuit 11-16 V d-c for 12 V flashers or 5-9 V d-c for 6 V flashers.

2.2.2 Output Current—Capable of supplying required design current(s) continuously and inrush currents as required by the design bulb load complement.

2.2.3 Regulation

2.2.3.1 Dynamic—The output voltage shall not deviate more than 1.0 V from 0 to maximum load (including inrush current) and shall recover 63% of its maximum excursion within 100 μ sec.

2.2.3.2 Static—The output voltage shall not deviate more than 2% with changes in static load from 0 to maximum (not including inrush current) nor for static line voltage variations.

2.2.4 Ripple Voltage—Maximum 75 mV, peak to peak.

2.3 POWER SUPPLY—DURABILITY TESTS—The power supply for the durability test requirements shall not generate any adverse transients not present in motor vehicles and shall comply with the following specificiation:

2.3.1 Output Voltage—Capable of supplying, as required, 14 and 13 V (7 and 6.5 V) d=c, according to the flasher rating, to the input terminals of the standard test circuits shown in Figs. 1 and 2.

2.3.2 Output Current—Capable of supplying a continuous output current of the design load for one flasher times the number of flashers and inrush currents as required by the bulb load complement.

2.3.3 Regulation

Dynamic: The output voltage shall not deviate more than 1.0 V from 0 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 0 to maximum (not including inrush current), and means shall be provided to compensate for static line voltage variations.

2.3.4 Ripple Voltage: Maximum 300 mV, peak to peak.

3. TESTING REQUIREMENTS

3.1 The flashers shall be mounted as specified by the manufacturer if special precautions are required.

3.2 The flashers shall be connected in a standard test circuit as shown in Fig. 1 for turn signal and hazard warning flashers or Fig. 2 for warning lamp alternating flashers using the design load(s) within 0.5% at 12.8 V (6.4 V) as specified by the flasher manufacturer.

3.3 A suitable high impedance measuring device connected to points X-Y in Fig. 1 or to points X-Y_1, and to points X-Y_2 in Fig. 2 shall be used for measuring flash rate, percent current "on" time, starting time, and voltage drop across the flasher. The measurement of these quantities shall not affect the circuit.

3.4 The resistance at A-B for each load circuit in Fig. 1 or Fig. 2 shall be measured with flasher and bulb loads each shorted out with removable shunt resistances not to exceed 0.005 ohms each.

The effective series resistance in the total circuit (Fig. 1) or in each of the parallel circuits (Fig. 2) between the power supply and bulb sockets (excluding the flasher and bulb loads by using the removable shunt resistances) shall be 0.10 ± 0.01 ohms.

3.5 Adjust the voltage at the bulbs to 12.8 V (6.4 V) as required for testing at C-D in Fig. 1 or C-D and E-F in Fig. 2 with the flasher shorted out by an effective shunt resistance not to exceed 0.005 ohms. The load current shall be held to the rated value for the total flasher design load(s) within 0.5% at 12.8 V (6.4 V) by simultaneously adjusting trimmer resistors, R.

3.6 For testing fixed load flashers at other required voltages, adjust the power supply to provide required voltages at required temperatures at C-D in Fig. 1 or C-D and E-F in Fig. 2 without readjustment of trimming resistors, R.

3.7 For testing variable load flashers, the circuit shall be first adjusted at 12.8 V (6.4 V) at C-D in Fig. 1 or C-D and E-F in Fig. 2 with a minimum required bulb load and the power supply shall be adjusted to provide other required test voltages at required temperatures at C-D in Fig. 1 or C-D and E-F in Fig. 2 without readjustment of trimming resistors, R (each required test voltage shall be set with a minimum bulb load in place). The required voltage tests with a maximum bulb load shall be conducted without readjusting each corresponding power supply voltage previous set with minimum bulb load.

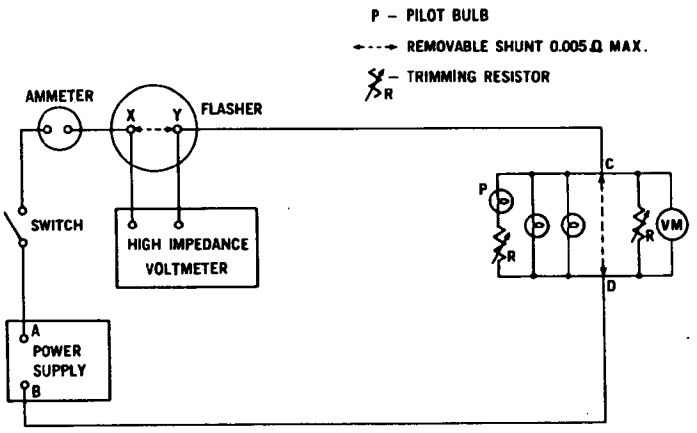

FIG. 1 - STANDARD TEST CIRCUIT — TURN SIGNAL AND HAZARD WARNING FLASHERS

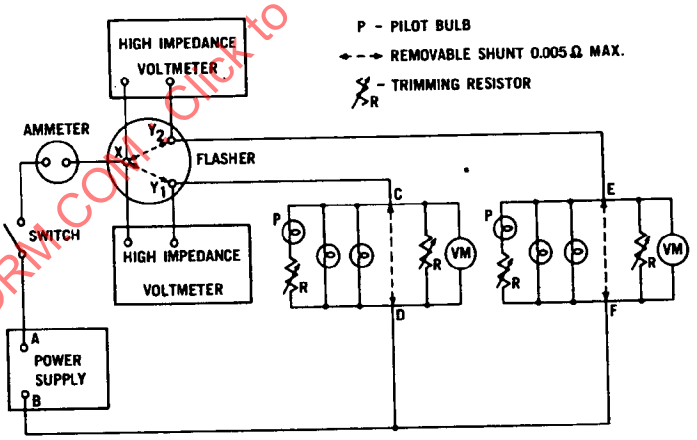

FIG. 2 - STANDARD TEST CIRCUIT — WARNING LAMP ALTERNATING FLASHER