

**PERFORMANCE OF VEHICLE TRAFFIC HORNS - SAE J377****SAE Standard**

Report of Vehicle Sound Level Committee approved April 1969.

1. INTRODUCTION

This SAE Standard establishes the minimum operational life cycles, corrosion resistance, and sound level output for traffic horns (electric) on new automotive highway vehicles. Test equipment, environment, and procedures are specified.

2. PERFORMANCE REQUIREMENTS

When measured in accordance with the procedures described herein, new vehicle horns shall equal or exceed the following requirements, using new horns for each of the tests.

- 2.1 Complete 50,000 cycles of the laboratory operation test without loss of more than 6 dbA output.
- 2.2 Complete 72 hr of salt spray exposure, after which the horn must be operational with a loss of output no more than 6 db A.
- 2.3 Produce a sound level, when mounted in the specified position(s) on a vehicle, of 82-102 db on an A-weighted network at a distance of 50 ft directly in front of the vehicle.

3. INSTRUMENTATION

The following instrumentation shall be used for the measurement required:

- 3.1 A precision sound level meter which meets the requirements of International Electrotechnical Commission Publication 179.
- 3.2 A sound level calibrator.
- 3.3 A calibrated windscreen.
- 3.4 A d-c voltmeter.

4. PROCEDURE

4.1 LABORATORY TESTS - Sound level output of the horn shall be measured according to the requirements of paragraphs 4.1.1 and 4.1.2 before and after life cycle and corrosion tests.

4.1.1 Test Conditions - Measure the sound level output in an anechoic chamber or a free field at a distance of 2.5 or 3 ft from the horn on the acoustical axis (highest output) of the horn. The horn and microphone are to be mounted at the same height, within 6 in. of 4 ft from the ground. The horn shall be mounted by the bracket to a

rigid surface during measurement. Ambient temperature during test shall be 72-80 F.

4.1.2 Power Supply - The power source shall consist of an automotive battery of the correct rated voltage for the horn tested, with an electrical power supply connected in parallel to maintain the state of charge of the battery. The electrical power supply shall have sufficient capacity to maintain full battery charge during test and shall deliver filtered direct current with a voltage regulation of 0.1% or less. The power supply voltage and the circuit resistance from the power supply to the horn terminal shall be as specified by the horn manufacturer.

4.1.3 Life Cycle Test

(a) Operate the horn for 50,000 cycles, each cycle consisting of 0.75 sec on and 3.25 sec off. The horn may be adjusted to nominal settings before conducting the test, but not thereafter.

(b) After completing the life cycle test, the sound level output shall be measured under the same conditions as before the test. The horn must satisfy the condition of paragraph 2.1.

4.1.4 Corrosion Resistance Test

(a) Subject the horn to a salt spray test in accordance with ASTM B 117 for 72 hr.

(b) After completing the salt spray test, the sound level output shall be measured under the same conditions as before the test. The horn must satisfy the conditions of paragraph 2.2.

4.2 SOUND OUTPUT TEST - Sound output is measured with the horn or horns, mounted on the vehicle in the specified position. The vehicle must be operated for at least 15 minutes to stabilize conditions before test. The engine on the vehicle shall be running at a speed at which the voltage regulator produces the vehicle manufacturer's specified voltage. Ambient temperature must be between 55 and 85 F. Sound level output must satisfy paragraph 2.3, with all horns with which the vehicle is equipped operating.

4.2.1 Test Site - A suitable test site shall consist of a flat open space free of large reflecting surfaces such as signboards, buildings, or hillsides located within 100 ft of either the vehicle or the microphone. During measurement, the surface of the ground shall be free from material such as powdery snow, long grass, loose soil, or ashes. The microphone location shall be 50 ft directly in front of the vehicle center. The area between the microphone and the vehicle