



Designation: F 1692 – 96

Standard Test Method for Life Evaluation of a Turbine-Powered Nozzle for Household Central Vacuum Cleaning Systems¹

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1. Scope

1.1 This test method covers the turbine-powered nozzle used in household central vacuum cleaning systems.

1.2 This test method provides a test for determining the operating turbine life in hours by an accelerated laboratory procedure. The turbine is tested while mounted and operated in the power nozzle.

1.3 This test method covers only the turbine-powered nozzle. The system used to provide the airflow source is not under consideration.

1.4 This test method is limited to the determination of turbine life for a household turbine-powered nozzle.

1.5 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

D 75 Practice for Sampling Aggregates²

E 337 Test Method for Measuring Humidity with a Psychrometer (the Measurement of Wet-Bulb and Dry-Bulb Temperatures)³

F 431 Specification for Air Performance Measurement Plenum Chamber for Vacuum Cleaners⁴

F 608 Laboratory Test Method for Evaluation of Carpet-Embedded Dirt Removal Effectiveness of Household Vacuum Cleaners⁴

F 655 Specification for Test Carpets and Pads for Vacuum Cleaning Testing⁴

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

¹ This test method is under the jurisdiction of ASTM Committee F-11 on Vacuum Cleaners and is the direct responsibility of Subcommittee F11.30 on Durability-Reliability.

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² Annual Book of ASTM Standards, Vols 04.02 and 04.03.

³ Annual Book of ASTM Standards, Vol 11.03.

⁴ Annual Book of ASTM Standards, Vol 15.07.

3.1.1 *turbine stoppage*—for turbine-powered nozzles, any failure integral with the turbine assembly such as housing(s), bearings, or any other component judged to be integral with the turbine.

4. Significance and Use

4.1 The test results provide an indication of the turbine-powered nozzle in terms of operating life. The end of turbine life will be judged in accordance with 3.1.1.

5. Apparatus and Materials

5.1 *Voltage Regulator*, capable of maintaining 120 ± 2 -V rms or rated voltage of the cleaner or airflow source with a waveform that is essentially sinusoidal with 3 % maximum harmonic distortion for the duration of the test.

5.2 *Voltmeter*, to provide measurements accurate to within ± 1 %.

5.3 *Timer and Switch*, having the capacity to control the off/on duty cycle of the nozzle and airflow source during the life test.

5.4 *Wattmeter*, to provide measurements accurate to within ± 1 %.

5.5 *Sharp-Edge Orifice Plate*—The orifice, 1¼-in. (32-mm) diameter, shall be in accordance with the orifice plate illustrated in Specification F 431.

5.6 *Plenum Chamber*, conforming to the plenum chamber specifications stated in Specification F 431.

5.7 *Water Manometer*, or equivalent instrument, measuring in increments of 0.1 in. (2.54 mm).

5.8 *Barometer*, with an accuracy of ± 0.05 in. (1.27 mm) Hg, capable of measuring uncorrected barometric pressure (test station pressure) with scale divisions of 0.02 in. (0.51 mm) or finer.

5.9 *Thermometer*, having a range from at least 18 to 80°F (−8 to +27°C) and graduated in 1°F (0.5°C) increments.

5.10 *Psychrometer*, meeting the requirements of Test Method E 337, with thermometers graduated in increments of 1°F (0.5°C).

5.11 *Test Carpet*, conforming to the specifications for level loop carpet as described in Specification F 655. A carpet that provides equivalent nozzle loading results may be used.

5.12 *Test Carpet Padding*, conforming to the padding described in Specification F 655.

5.13 *Test Cleaner or Airflow Source*—The turbine nozzle