

MIL-STD-202G

METHOD 105C

BAROMETRIC PRESSURE (REDUCED)

1. PURPOSE. The barometric pressure test is performed under conditions simulating the low atmospheric pressure encountered in the nonpressurized portions of aircraft and other vehicles in high altitude flight. This test is intended primarily to determine the ability of component parts and materials to avoid dielectric-withstanding-voltage failures due to the lowered insulating strength of air and other insulating materials at reduced pressures. Even when low pressures do not produce complete electrical breakdown, corona and its undesirable effects, including losses and ionization, are intensified. Low barometric pressures also serve to decrease the life of electrical contacts, since intensity of arcing is increased under these circumstances. For this reason, endurance tests of electro-mechanical component parts are sometimes conducted at reduced pressures. Low-pressure tests are also performed to determine the ability of seals in component parts to withstand rupture due to the considerable pressure differentials which may be developed under these conditions. The simulated high altitude conditions of this test can also be employed to investigate the influence on component parts operating characteristics, of other effects of reduced pressure, including changes in dielectric constants of materials; reduced mechanical loading on vibrating elements, such as crystals; and decreased ability of thinner air to transfer heat away from heat-producing components.

2. APPARATUS. The apparatus used for the barometric pressure test shall consist of a vacuum pump and a suitable sealed chamber having means for visual observation of the specimen under test when necessary. A suitable pressure indicator shall be used to measure the simulated altitude in feet in the sealed chamber.

3. PROCEDURE. The specimens shall be mounted in the test chamber as specified and the pressure reduced to the value indicated in one of the following test conditions, as specified. Previous references to this method do not specify a test condition; in such cases, test condition B shall be used. While the specimens are maintained at the specified pressure, and after sufficient time has been allowed for all entrapped air in the chamber to escape, the specimens shall be subjected to the specified tests.

Test condition	Pressure - Maximum		Altitude	
	Inches of mercury	Millimeters of mercury	Feet	Meters
A	8.88	226.00	30,000	9,144
B	3.44	87.00	50,000	15,240
C	1.31	33.00	70,000	21,336
D	0.315	8.00	100,000	30,480
E	0.043	1.09	150,000	45,720
F	17.3	439.00	15,000	4,572
G	9.436 x10 <sup>-8</sup>	2.40 x 10 <sup>-6</sup>	656,000	200,000

4. SUMMARY. The following details are to be specified in the individual specification:

- a. Method of mounting (see 3).
- b. Test condition letter (see 3).
- c. Tests during subjection to reduced pressure (see 3).
- d. Tests after subjection to reduced pressure, if applicable.
- e. Exposure time prior to measurements, if applicable.