INCH-POUND

MIL-B-23071C
AMENDMENT 3
23 March 1993
SUPERSEDING
AMENDMENT 2
3 July 1984

MILITARY SPECIFICATION

BLOWERS, MINIATURE, FOR COOLING ELECTRONIC EQUIPMENT

GENERAL SPECIFICATION FOR

This amendment forms a part of MIL-B-23071C, dated 17 June 1983, and is approved for use by all Departments and Agencies of the Department of Defense.

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* Paragraph 2.2, AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI): Add "IEEE 119-1974 Recommended Practice for General Principles of Temperature Measurement as Applied to Electrical Apparatus."

PAGE 4

Paragraph 3.5.6, last sentence: Delete "After the life test, the value shall not increase by more than 25 percent from the initial value" and substitute "After the life test, the value shall not increase by more than 25 percent from the initial value or exceed the specification sheet value (see MIL-B-23071/9)."

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* Paragraph 3.6, last sentence: Delete "shall" and substitute "may".

PAGES 16 and 17

* Paragraph 4.7.21 through 4.7.21.2: Delete and substitute:

4.7.21 Temperature rise (see 3.5.20)

4.7.21.1 Continuous duty blowers. The temperature rise of the windings shall be determined by resistance measurements made in a draft-free area. The blower shall be mounted by its normal means on a surface of low thermal conductivity. One of the following methods shall be used.

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4.7.21.1.1 Recently de-energized blower. A thermocouple shall be securely attached to the motor frame at a convenient location between bearings on the motor frame surface. Frame temperature, room ambient temperature, and motor winding resistance shall be measured and recorded. The blower shall then be energized for a 3-hour minimum period with nominal voltage and frequency until the frame temperature has reached the point of stability. The blower shall be considered to be thermally stable when five successive frame temperature readings at one minute intervals are equal. This temperature shall be recorded for informational purposes. To determine R, the resistance of the main winding shall be measured five times at intervals of approximately 30 seconds, commencing immediately after the motor is de-energized. After the fifth measurement is completed, the resistance shall then be extrapolated back to the resistance at the time of shutdown. The temperature rise of the winding shall be computed from the following formula.

$$\Delta T = \frac{R - r}{r} \times (t' + 234.5) - (T - t')$$

Where:

ΔT = Temperature rise in degrees Celsius of the winding over the ambient temperature.

t' = Initial ambient temperature in degrees Celsius - room temperature.

R = Resistance of the winding in ohms at the time of shutdown.

r = Resistance of the winding in ohms at temperature t'.

T = Ambient temperature at the time of shutdown.

4.7.21.1.2 Energized blower. The motor windings shall be connected in a circuit as shown in figure 1 which incorporates the "Seeley Method" as described in IEEE 119-1974. The measured resistance includes that of the connecting leads between the test equipment and the apparatus being tested. Therefore, the resistance of the connecting leads, if appreciable, must be subtracted from the total measured resistance. The blower shall then be energized for a sufficient period with nominal voltage and frequency until the winding temperature has reached the point of stability as determined by a minimum of five resistance measurements. The blower shall be considered to be thermally stable when five successive resistance measurements are equal. This value will then be R and shall be used to compute the temperature rise of the winding by the same formula described for a de-energized blower.

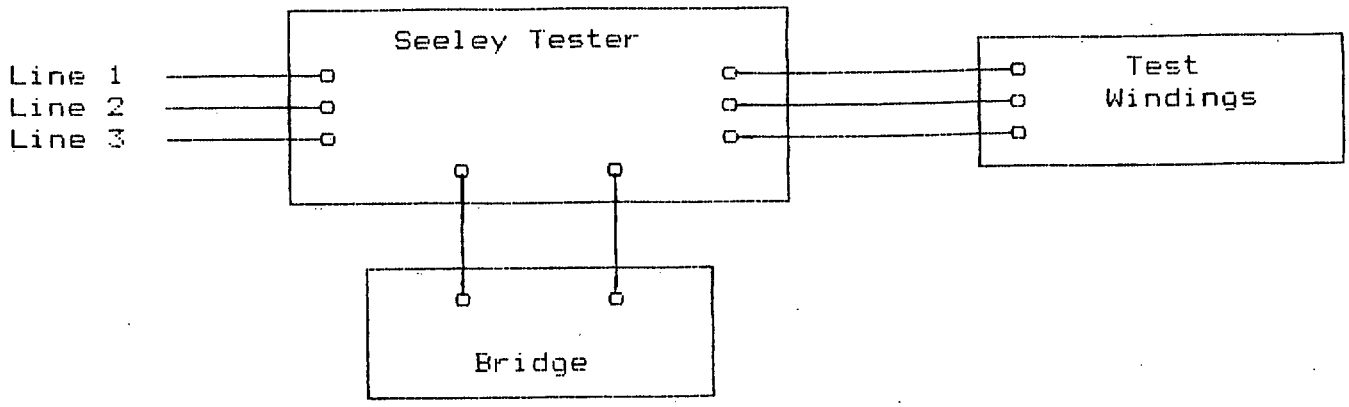

Figure 1. Test circuit for measuring resistance of A-C energized phase or polyphase windings.

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