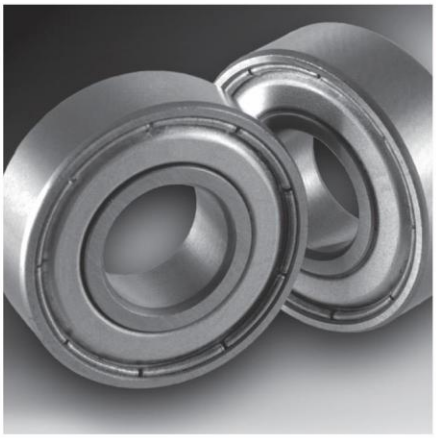

AMERICAN NATIONAL STANDARD

Accredited Standards Committee B3

American National Standard for Rolling Element Bearings – Aircraft Engine, Engine Gearbox, and Accessory Applications – Eddy Current Inspection

Secretariat

American Bearing Manufacturers Association

ANSI/ABMA B3.1: 1992

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AMERICAN NATIONAL STANDARD

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Contents

Foreword (This foreword is not part of American National Standard B3.1-1992.)

This American National Standard was prepared by a task force consisting of representatives of companies which manufacture rolling element bearings and aircraft, or aircraft engines, or both, in the United States. This standard is issued by the Accredited Standards Committee B3 of the American National Standards Institute as an industrial standard that is intended to be used by aircraft manufacturers, or aircraft engine manufacturers, or both, for the procurement of rolling element bearings for aircraft engine and accessory applications.

Suggestions for improvement of this standard will be welcome. They should be sent to the Anti-Friction Bearing Manufacturers Association, Inc., 1101 Connecticut Avenue, NW, Suite 700, Washington, DC 20036.

This standard was processed and approved for submittal to ANSI by the Accredited Standards Committee on Ball and Roller Bearings, B3. Committee approval of this standard does not necessarily imply that all committee members voted for its approval. At the time it approved this standard, the B3 Committee had the following members:

Gene Looft, Chairman
Robert H. Feest, Vice-Chairman
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American National Standard

for Rolling Element Bearings – Aircraft Engine, Engine Gearbox, and Accessory Applications – Eddy Current Inspection

1 Scope

This standard specifies a method for detection of discontinuities or nonhomogeneities in bearing components by means of eddy current interrogation. This standard is applicable to rolling element bearings used in aircraft engine, engine gearbox, and accessory applications.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

ASNT-TC-1A, 1988, *Personnel qualification and certification in nondestructive testing*[1)]

MIL-STD-410, Rev D, *Nondestructive testing personnel qualification and certification*[2)]

3 Definitions

3.1 signal-to-noise-ratio: The ratio of value of signal (response containing information) to that of noise (response containing no information).

3.2 residual magnetism: The amount of magnetism that a material retains after the magnetizing force is removed (also called *residual field*).

3.3 (probe) shielding: A conductive or magnetic material (or a combination of both) placed so as to decrease susceptibility to interference, or to increase resolution.

3.4 filtering: The removal from, or minimizing of, certain frequencies from the signal; it attenuates interfering signals and improves the signal-to-noise ratio.

3.5 load-bearing surface: Surfaces of the bearing that are in rolling contact (i.e., ball or roller outer diameter and ball or roller tracks or rings).

3.6 inspection speed: The relative speed in the direction of rotation between the probe and the surface of the part being inspected.

3.7 traverse rate: The relative linear speed, perpendicular to the direction of rotation, between the probe and the surface of the part being inspected.

3.8 ferrite diameter: The diameter of the ferrite core of the probe.

3.9 rejection criteria: The percentage of the reference level signal from calibration that is acceptable.

3.10 sensitivity: The response level for a given input.

[1)] Available from the American Society for Nondestructive Testing, 1711 Arlingate Lane, Columbus, OH 43228.

[2)] Available from the Naval Publications and Forms Center, Attention NPFC-3064, 5801 Tabor Avenue, Philadelphia, PA 19120.