AS 2824—1985

Australian Standard®

NON-DESTRUCTIVE TESTING—ULTRASONIC METHODS—EVALUATION AND QUALITY CLASSIFICATION OF METAL BEARING BONDS

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The following interests are represented on Committee MT/7:

Australian Atomic Energy Commission
Australian Institute for Non-destructive Testing
Australian Pipeline Industry Association
Australian Welding Institute
Bureau of Steel Manufacturers of Australia
Commonwealth Aircraft Corporation
Confederation of Australian Industry
Department of Defence
Department of Industrial Relations, N.S.W.
Electricity Supply Association of Australia
Institute of Australian Foundrymen
Metal Trades Industry Association of Australia
Ministry of Employment and Training, Victoria
National Association of Australian State Road Authorities
National Association of Testing Authorities, Australia
Pipeline Authority
Railways of Australia Committee
Society of Automotive Engineers—Australasia

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PREFACE

This standard was prepared by a subcommittee of the Association's Committee for Non-destructive Testing of Metals and Materials at the request of industry to provide a suitable method for the evaluation and quality classification of metal bearing bonds.

During the preparation of this standard, the subcommittee reviewed both local and overseas specifications issued by electricity generating authorities. In addition, account was taken of ISO 4386/1* although, in respect of specification of dead zone and near zone characteristics, this Australian standard differs from ISO 4386/1 because, in the subcommittee's opinion, there was insufficient protection against error.

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* ISO 4386/1 Plain Bearings—Metallic Plain Bearings —
Part 1: Non-destructive Ultrasonic Testing of Bond for Bearing Metal Layer Thicknesses ≥2 mm.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
NON-DESTRUCTIVE TESTING—ULTRASONIC METHODS—EVALUATION AND QUALITY CLASSIFICATION OF METAL BEARING BONDS

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard sets out methods for manual ultrasonic testing of metal bearing bonds and the classification of bond quality.

NOTE: Guidelines on information that should be supplied with the enquiry and order are given in Appendix A.

1.2 APPLICATION. Procedures described in this standard enable the location, delineation and assessment of quality of metal bearing bond to backing material to be carried out.

The test shall be carried out when the metal bearing is at the proof machined stage, i.e. prior to machining of grooves, oil ways, etc, which if present can prevent the full scanning of the bond area.

Quality levels described in Section 5 are divided into edge defects and total bearing area defects, with six levels for each defect type.

1.3 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1929 Non-destructive Testing—Glossary of Terms

AS 2083 Calibration Blocks and Their Methods of Use in Ultrasonic Testing.

1.4 DEFINITIONS. For the purpose of this standard, the definitions given in AS 1929 and the following apply:

1.4.1 Backing material or shell—that part of the bearing manufactured from a rigid material onto which the bearing metal is bonded.

1.4.2 Bearing metal—any homogeneous material which is bonded to the backing or shell and which reduces friction between the bearing and moving part.

1.4.3 Bearing—any device consisting of two bonded materials designed to reduce friction with a moving part, e.g. bearing, slipper bearing, journal pads, thrust pads.

1.4.4 Edge of bearing—any part of the bearing where the bond interface is exposed, i.e. outer edge of bearing, the joint of two halves of a bearing or any intrusion into the bearing such as oil holes.

1.4.5 Edge zone—a distance of 4 times the thickness of the bearing metal being measured normal to any edge as defined in Clause 1.4.4.

1.4.6 Good bond—a bond where the A-scan does not display multiple interference echoes (see Fig. 1.1).

1.4.7 Poor bond—a bond where the A-scan presentation displays an interface and at least two multiple echoes (see Fig. 1.2)

NOTE: A poor bond does not indicate a total lack of bond but such bonds will have minimal or uncertain bond strength.

1.4.8 Porosity—any volumetric discontinuity within the bearing metal which interferes with the interpretation of bond quality.

1.4.9 Reference echo—that echo from a known reflector which is used to set sensitivity.

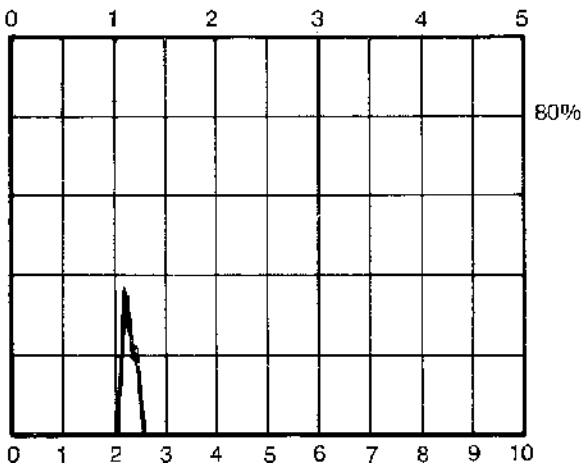

Fig. 1.1. GOOD BOND

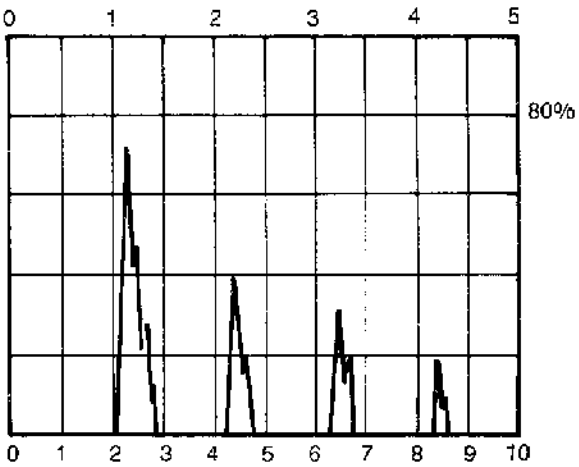

Fig. 1.2. POOR BOND