

AS 1085.1 Supplement 1:2017

Railway track material—Steel rails— History (Supplement 1 to AS 1085.1—2002)



This Australian Standard Supplement was prepared by Committee CE-002, Railway Track Materials. It was approved on behalf of the Council of Standards Australia on 11 December 2017.

This Supplement was published on 22 December 2017.

The following are represented on Committee CE-002:

- Australian Chamber of Commerce and Industry
 - Australian Industry Group
 - Monash University
 - Permanent Way Institution, NSW
 - Rail Industry Safety and Standards Board
 - Rail Track Association Australia
 - Railway Technical Society of Australasia
-

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Supplement through their representation on the Committee.

Keeping Standards up-to-date

Australian Standards® are living documents that reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued.

Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments that may have been published since the Standard was published.

Detailed information about Australian Standards, drafts, amendments and new projects can be found by visiting www.standards.org.au

Standards Australia welcomes suggestions for improvements, and encourages readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at mail@standards.org.au, or write to Standards Australia, GPO Box 476, Sydney, NSW 2001.

AS 1085.1 Supplement 1:2017

Railway track material—Steel rails— History (Supplement 1 to AS 1085.1—2002)

First published as AS 1085.1—2002 Sup 1:2017.

COPYRIGHT

© Standards Australia Limited

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968.

Published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001, Australia

ISBN 978 1 76035 973 7

PREFACE

This Supplement was prepared by the Standards Australia Committee CE-002, Railway Track Materials.

The objective of this Supplement is to provide users and maintainers of railway rail with information on old rail profiles for convenience of identification when such rails are encountered in the field.

This Supplement does not provide sufficient information to allow the old rail profiles to be manufactured. It may be of use in manufacturing other railway track materials for use with old profiles, such as fishplates. It is recommended that this document is not used to specify rails made to any of the old rail profiles as the appropriate details for the preferred Standard sizes are those given in the current edition of AS 1085.1.

The following sources were used for the information in this Supplement:

- (a) Drawing by the Department of Railways NSW Way and Works Branch: No. 81–23 *Rail Section and Properties* which is now maintained by TfNSW Asset Standards Authority.
- (b) Drawing by the South Australian Railways: D65/41 *Various Rail Sections in Track* (this plan superseded plan D43/55) which is now maintained by Department of Planning, Transport and Infrastructure (DPTI).
- (c) Drawings by Commonwealth of Australia, Institute of Science and Industry: *Australian Standard Rails and Fishplates*, dated August 1919.
- (d) Copies of drawings collected by a number of contributors, including David Griffiths and Pat McKay. These included a number from a 1958 document for rail in Victoria (signed off 7/5/1958). These are now maintained by Public Transport Victoria (PTV).
- (e) Copies of drawings by Western Australian Railways, which are now maintained by Brookfield Rail.

Non-Standard profiles have been identified by the use of letters following the weight number. These letters are those given on the source drawings with the exception that the letter V has been added for those found in the Victorian 1958 document (see Section 11).

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE.....	6
1.2 REFERENCED DOCUMENTS.....	6
1.3 DEFINITIONS.....	6
1.4 MEASURING UNITS	6
1.5 HISTORY OF AUSTRALIAN RAILS	6
1.6 RAIL PROPERTIES.....	8
SECTION 2 AUSTRALIAN STANDARD FOR 68 KG, 60 KG AND 50 KG PROFILES	
2.1 68 kg (AS 1085.1—2002).....	10
2.2 60 kg (AS 1085.1—2002).....	11
2.3 50 kg (AS 1085.1—2002).....	12
SECTION 3 AUSTRALIAN STANDARD FOR 41 KG PROFILE AND ITS PREDECESSORS	
3.1 41 kg (AS 1085.1—2002).....	13
3.2 82 lb (AS E. 22—1937)	14
3.3 80 lb (80B) (AS E. 22—1928)	15
3.4 80 lb (80A) (AS E. 1—1925).....	16
SECTION 4 AUSTRALIAN STANDARD FOR 31 KG PROFILE AND ITS PREDECESSORS	
4.1 31 kg (AS 1085.1—2002).....	17
4.2 63 lb (60B) (AS E. 22—1928)	18
4.3 60 lb (60A) (AS E. 1—1925).....	19
4.4 70 lb (AS E. 1—1925)	20
SECTION 5 DISCONTINUED AUSTRALIAN STANDARD FOR 53 KG PROFILE	
5.1 53 kg (AS 1085.1—1985).....	21
5.2 107 lb (AS E. 22—1937)	23
5.3 110 lb (AS E. 22—1928)	24
5.4 100 lb (AS E. 22—1928)	25
5.5 100 lb (AS E. 1—1925)	26
SECTION 6 DISCONTINUED AUSTRALIAN STANDARD FOR 47 KG PROFILE	
6.1 47 kg (AS 1085.1—1985).....	27
6.2 94 lb (AS E. 22—1937)	29
6.3 90 lb (AS E. 1—1925)	30
SECTION 7 A.S. 1916 PROFILES	
7.1 GENERAL.....	31
7.2 100 lb (A.S. 1916).....	31
7.3 90 lb (A.S. 1916)	31
7.4 80 lb (A.S. 1916)	33
7.5 70 lb (A.S. 1916)	33
7.6 60 lb (A.S. 1916)	33

SECTION 8 NON-STANDARD PROFILES—NEW SOUTH WALES	
8.1	GENERAL..... 34
8.2	100 C RAIL (1901)..... 35
8.3	100 C RAIL (1907)..... 36
8.4	90 J RAIL (1913)..... 37
8.5	80 A RAIL (1890)..... 38
8.6	80 A RAIL (1895)..... 39
8.7	80 A RAIL (1897)..... 40
8.8	80 A RAIL (1900)..... 41
8.9	80 A RAIL (1907)..... 42
8.10	80 E BH (BULL HEAD) RAIL..... 43
8.11	78 H RAIL (1903)..... 44
8.12	75 F DH (DOUBLE HEAD) RAIL..... 45
8.13	75 BHP RAIL (1917)..... 46
8.14	71½ D RAIL (1875)..... 47
8.15	70 RAIL (1910)..... 48
8.16	60 B RAIL (1890)..... 49
8.17	60 B RAIL (1896)..... 50
8.18	60 B RAIL (1907)..... 51
SECTION 9 NON-STANDARD PROFILES—QUEENSLAND 52	
SECTION 10 NON-STANDARD PROFILES—SOUTH AUSTRALIA	
10.1	GENERAL..... 53
10.2	80 lb COMMONWEALTH RAIL..... 53
10.3	80 lb BRITISH RAIL..... 54
10.4	80 lb VICTORIAN RAIL 55
10.5	61 lb SOUTH AUSTRALIAN RAILWAYS (SAR) RAIL..... 56
10.6	60 A SOUTH AUSTRALIAN RAILWAYS (SAR) RAIL..... 57
SECTION 11 NON-STANDARD PROFILES—VICTORIA	
11.1	GENERAL..... 58
11.2	100 lb (VM) RAIL (STEEL M)..... 58
11.3	100 lb (VP) RAIL (STEEL P)..... 59
11.4	80 lb (VO) RAIL (STEEL O)..... 60
11.5	75 lb (VHI) RAIL (STEEL H)..... 61
11.6	75 lb (VHZ) RAIL [STEEL H (2)]..... 62
11.7	75 lb (VI) RAIL (STEEL I)..... 63
11.8	66 lb (VE) RAIL (STEEL E)..... 64
11.9	66 lb (VF) RAIL (STEEL F)..... 65
11.10	60 lb (VC) RAIL (IRON C AND STEEL C)..... 66
11.11	60 lb (VD1) RAIL (STEEL D)..... 67
11.12	60 lb (VD2) RAIL (STEEL D)..... 68
11.13	60 lb (VN) RAIL (STEEL N)..... 69
SECTION 12 NON-STANDARD PROFILES—WESTERN AUSTRALIA	
12.1	GENERAL..... 70
12.2	119 lb AREA RAIL 70
12.3	80 lb A.S. RAIL..... 71
12.4	80 lb COMMONWEALTH RAIL..... 72
12.5	80 lb B.S. RAIL..... 73
12.6	66 kg AREA RAIL 74
12.7	60 lb WA RAIL 75

	<i>Page</i>
12.8 60 lb B.S. RAIL	76
12.9 58 lb WA RAIL	77
12.10 46¼" WA RAIL	78
12.11 45 lb WA RAIL	79
BIBLIOGRAPHY	80

STANDARDS AUSTRALIA

Australian Standard**Railway track material—Steel rails—History
(Supplement 1 to AS 1085.1—2002)**

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Supplement provides information on rail profiles used in the past in Australia. The information provided is not complete. Information given includes the following:

- (a) Drawings of the profiles.
- (b) History.

This information will be of use to owners and maintainers of railways when old rails are encountered in the field.

1.2 REFERENCED DOCUMENTS

Documents referenced in this Supplement are listed in the Bibliography.

1.3 DEFINITIONS

For the purpose of this Supplement, the definitions given in AS 1085.1 and AS 1929 apply.

1.4 MEASURING UNITS

The old rail profiles are given with their original dimensions (in inches and mass in pounds per yard). Section properties given with these are also in imperial (inches). The figures have basic dimensions also given in millimetres in brackets. Metric profiles are dimensional in millimetres.

1.5 HISTORY OF AUSTRALIAN RAILS**1.5.1 General**

Railways began to be built in the 1750s and were widespread in British mines and quarries by the 1790s. By 1850 there was an excess of different profiles in use, both plate rails for flat wheels and edge rails for profiled wheels.

For an indication of the variety of rails available, the Barlow rail (see Figure 1.1) invented in 1849, was used in some early railways in Australia [e.g. Sydney to Parramatta line (1855)]. It was designed to be laid direct on the ballast without requiring sleepers. However, it was not very successful because of lack of gauge holding ability, difficulty in laying curves and ongoing maintenance difficulties and disappeared from general use within 20 years of invention and introduction.

NOTE: Lengths of Barlow rail from the Parramatta line can be seen in the Powerhouse Museum, Sydney.