



# Recommended Practices for the Welding of Rails and Related Rail Components for Use by Rail Vehicles



**American Welding Society®**



**AWS D15.2/D15.2M:2013  
An American National Standard**

**Approved by the  
American National Standards Institute  
October 30, 2012**

# **Recommended Practices for the Welding of Rails and Related Rail Components for Use by Rail Vehicles**

**3rd Edition**

**Supersedes AWS D15.2:2003**

Prepared by the  
American Welding Society (AWS) D15 Committee on Railroad Welding

Under the Direction of the  
AWS Technical Activities Committee

Approved by the  
AWS Board of Directors

## **Abstract**

This document recommends the minimum standards for the welding of rails and related rail components used by rail vehicles. Repair procedures for rails and austenitic manganese steel components are covered. Thermite welding and electric flash welding guidelines are discussed. Procedure qualification, welder qualification, and general welding safety procedures are addressed.



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International Standard Book Number: 978-0-87171-829-7  
American Welding Society  
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## Foreword

This foreword is not part of AWS D15.2/D15.2M:2013, *Recommended Practices for the Welding of Rails and Related Rail Components for Use by Rail Vehicles*, but is included for informational purposes only.

This recommended practice establishes standards for the joining, repair, maintenance and inspection of rail welds, and the welding of related rail components. It was developed and is maintained by the Subcommittee on Track Welding within the AWS Committee on Railroad Welding.

The welding of rails and related rail components for use by rail vehicles is vital to the safe and economical operation of American railroads. This subcommittee has endeavored to develop these recommended practices to serve as a guideline for the railroad and related industries in the establishment of track welding specifications. The subcommittee is made up of individuals from all segments of the railroad industry, both users and suppliers, and representatives of both the Association of American Railroads and the American Railway Engineering and Maintenance-of-Way Association.

The purpose of this document is to provide a single comprehensive source of information that will be used throughout the railroad industry. It should act as a guideline towards improving welding quality through the economical joining and repair of rail and rail components.

The evolution of AWS D15.2, *Recommended Practices for the Welding of Rails and Related Rail Components for Use by Rail Vehicles*, is shown below:

ANSI/AWS D15.2-94, *Recommended Practices for the Welding of Rails and Related Rail Components for Use by Rail Vehicles*

AWS D15.2:2003, *Recommended Practices for the Welding of Rails and Related Rail Components for Use by Rail Vehicles*

Comments and suggestions for the improvement of this standard are welcome. They should be sent to the Secretary, AWS D15 Committee on Railroad Welding, American Welding Society, 8669 Doral Blvd., Suite 130, Doral, FL 33166.



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# Table of Contents

	<b>Page No.</b>
<i>Personnel</i> .....	v
<i>Foreword</i> .....	vii
<i>List of Tables</i> .....	xi
<i>List of Figures</i> .....	xi
<i>List of Forms</i> .....	xi
<b>1. General Requirements</b> .....	<b>1</b>
1.1 Scope .....	1
1.2 Units of Measurement .....	1
1.3 Safety .....	1
<b>2. Normative References</b> .....	<b>2</b>
<b>3. Terms and Definitions</b> .....	<b>2</b>
<b>4. Rail, Rail Components Manufactured from Rail, and Their Repair</b> .....	<b>3</b>
4.1 Specific Items .....	3
4.2 Welding and Joining Processes .....	3
4.3 Railroad Rail Welding .....	3
4.4 Repair of Battered Rail Ends and Wheel Burns (Carbon Steel or Premium Carbon Steel Rail) .....	3
4.5 Repair of Rail-Type Switch Points and Switch Point Protectors .....	5
4.6 Frogs, Crossings, and Other Components Made From Rail Steel .....	5
4.7 Miscellaneous Carbon Steel and Premium Carbon Steel Components .....	5
<b>5. Repair or Fabrication of Components Manufactured from Austenitic Manganese Steel</b> .....	<b>6</b>
5.1 Metallurgical Background .....	6
5.2 Components .....	6
5.3 Welding Processes .....	6
5.4 Filler Metals .....	6
5.5 Preparation for Welding .....	6
5.6 General Welding Recommendations for Austenitic Manganese Steel .....	7
5.7 Welding Recommendations—Frogs and Crossings in Track .....	8
<b>6. Recommended Practices for Joining of Rails by Thermite Welding (TW)</b> .....	<b>8</b>
6.1 General Description .....	9
6.2 Application .....	9
6.3 Preparation of Final Gap for Welding .....	9
6.4 Welding Procedure .....	9
6.5 Care of Thermite Materials .....	9
6.6 Procedure Qualification .....	10
6.7 Welder Qualification .....	10
6.8 Thermite Welding Safety Precautions .....	11
<b>7. Recommended Practices for Joining of Rails by Flash Welding (FW)</b> .....	<b>12</b>
7.1 General Process Description .....	12
7.2 Rail Preparation .....	12
7.3 Rail Welding .....	12
7.4 Finishing Operations .....	13
7.5 Continuous Welded Rail Storage .....	13

<b>8. Application of Rail Bonds Using External Heat</b> .....	13
8.1 General Process Description .....	13
8.2 Rail Preparation .....	13
8.3 Rail Preheating .....	13
8.4 Bond Wire Application .....	13
8.5 Controlled Cooling .....	13
<b>9. Track Welder Qualification—Arc Welding Processes</b> .....	14
9.1 General Information for Austenitic Manganese (Hadfield) Steel .....	14
9.2 Qualification by Standard Test for Austenitic Manganese Steel .....	15
9.3 Qualification by Workmanship Test for Austenitic Manganese Steel .....	15
9.4 Test Weldments for Austenitic Manganese Steel .....	15
9.5 Examination Procedures and Acceptance Criteria for Austenitic Manganese Steel .....	16
9.6 Performance Qualification Variables for Austenitic Manganese Steel .....	20
9.7 General Information for Rail Steel .....	20
9.8 Qualification by Standard Test for Rail Steel .....	21
9.9 Qualification by Workmanship Test for Rail Steel .....	21
9.10 Test Weldments for Rail Steel .....	23
9.11 Examination Procedures and Acceptance Criteria for Rail Steel .....	24
9.12 Performance Qualification Variables for Rail Steel .....	26
<b>10. Testing</b> .....	26
10.1 Nondestructive Testing .....	26
10.2 Other Testing .....	26
Annex A (Informative)—Welding Processes .....	31
Annex B (Informative)—Welding of Austenitic Manganese Steel .....	37
Annex C (Informative)—Flash Welding Guidance .....	41
Annex D (Informative)—AREMA Tests for Continuous Welded Rail .....	43
Annex E (Informative)—Sample Forms .....	47
Annex F (Informative)—Guidelines for the Preparation of Technical Inquiries .....	49
List of AWS Documents on Railroad Welding .....	51

## List of Tables

<b>Table</b>		<b>Page No.</b>
4.1	Welding Processes for Carbon and Premium Carbon Steel Rail Components . . . . .	3
9.1	Examination Requirements for Performance Qualification . . . . .	15
9.2	Position Limitations for Performance Tests . . . . .	17
9.3	Examination Requirements for Performance Qualification . . . . .	21
9.4	Position Limitations for Performance Tests . . . . .	25
10.1	Minimum Performance Specifications for New Flash and Thermite Welded Rail. . . . .	27
D.1	Wheel Loads for Rolling Load Test . . . . .	44

## List of Figures

<b>Figure</b>		<b>Page No.</b>
4.1	Typical Weld Pattern for Rail End Repair . . . . .	4
5.1	Typical Skip Welding Repair . . . . .	8
9.1(a)	Typical Test Plates . . . . .	16
9.1(b)	Typical Weld Bead Sequence for Test Weldments. . . . .	17
9.1(c)	Typical Weld Bead Sequence for Test Weldments. . . . .	17
9.2	Typical Test Weldments . . . . .	18
9.3	Dimensions for Inspection . . . . .	19
9.4(a)	Typical Weld Bead Sequence for Test Weldments. . . . .	22
9.4(b)	Typical Weld Bead Sequence for Test Weldments. . . . .	23
9.4(c)	Typical Weld Bead Sequence for Test Weldments. . . . .	23
9.5	Typical Test Plates . . . . .	24
9.6	Dimensions for Inspection . . . . .	25
10.1	Layout of Hardness Survey on Rail Head. . . . .	28
10.2	Layout of Transverse Hardness Survey . . . . .	29
A.1	Shielded Metal Arc Welding (SMAW). . . . .	31
A.2	Gas Metal Arc Welding (GMAW) . . . . .	32
A.3	Flux Cored Arc Welding (FCAW) . . . . .	33
A.4	Section Through a Thermite Mold and Crucible . . . . .	34
A.5	Automatic Hydraulically Operated Flash Welding Machine with Horizontal Clamping . . . . .	34
A.6	Rail Welding Production Line. . . . .	35
A.7	Oxyfuel Gas Welding (OFW). . . . .	35
D.1	Loading Arrangement for the 12 in [305 mm] Stroke Rolling Load Machine . . . . .	43
D.2	Load Arrangement for the Slow Bend Test and Formula for Deriving the Modulus of Rupture. . . . .	45

## List of Forms

<b>Form</b>		<b>Page No.</b>
E-1	Typical Welding Procedure Qualification Test Record . . . . .	47
E-2	Typical Welder Performance Qualification Test Record . . . . .	48

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# Recommended Practices for the Welding of Rails and Related Rail Components for Use by Rail Vehicles

## 1. General Requirements

**1.1 Scope.** This document recommends standards for joining, repair, maintenance, inspection of rail welds, and related rail components. For the purposes of this document, rails include railroad rails, crane rails, guard rails, electrical contact rails, girder rails, and retarder rails. Classification of rails is based on the American Railway Engineering and Maintenance-of-Way Association (AREMA) specifications governing the manufacture of rails.

Related rail components include rail crossings and turnouts which further include switch points, stock rails, switch point guards, spacer blocks, connecting rods, switch rods, plates, frogs, and frog components.

The use of track components reconditioned by welding is a decision of the rail owner outside the scope of this document. This document does not include road bed maintenance except where it affects the expected life of the repair.

Welding processes addressed in this document include shielded metal arc welding (SMAW), gas metal arc welding (GMAW), flux cored arc welding (FCAW), flash welding (FW), and thermite welding (TW). See Annex A and the *Welding Handbook*, Volumes 2 and 3, Ninth Edition for details on these processes.

**1.2 Units of Measurement.** This standard makes use of both U.S. Customary Units and the International System of Units (SI). The latter are shown within brackets [ ], or in appropriate columns in tables and figures. The measurements may not be exact equivalents; therefore, each system must be used independently.

**1.3 Safety.** Safety and health issues and concerns are beyond the scope of this standard; some safety and health information is provided, but such issues are not fully addressed herein.

Safety and health information is available from the following sources:

American Welding Society

- (1) ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*
- (2) AWS Safety and Health Fact Sheets
- (3) Other safety and health information on the AWS website

Material or Equipment Manufacturers:

- (1) Material Safety Data Sheets supplied by materials manufacturers
- (2) Operating Manuals supplied by equipment manufacturers

Applicable Regulatory Agencies

- (1) *Code of Federal Regulations (CFR), Title 49, Part 214, Railroad Workplace Safety.*

Work performed in accordance with this standard may involve the use of materials that have been deemed hazardous and may involve operations or equipment that may cause injury or death. This standard does not purport to address all safety and health risks that may be encountered. The user of this standard should establish an appropriate safety program to address such risks as well as to meet applicable regulatory requirements. ANSI Z49.1 should be considered when developing the safety program.