Abstract
This specification establishes minimum standards for the manufacture and maintenance of railroad equipment. Clauses 4 through 17 cover the general requirements for welding in the railroad industry. Clauses 18 through 24 cover specific requirements for the welding of base metals thinner than 1/8 in [3 mm].
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Foreword

This foreword is not part of AWS D15.1/D15.1M:2012, Railroad Welding Specification for Cars and Locomotives, but is included for informational purposes only.

This specification establishes minimum standards for the manufacture and maintenance of railroad equipment. It was developed and is maintained by the D15 Committee on Railroad Welding of the American Welding Society.

Welding of railroad components is vital to the industry. An investigating committee was formed in 1982 which recommended a Railroad Welding Committee be formed to establish minimum welding standards for the industry. This recommendation was made because of confusion and incompleteness of the existing welding specifications and guides as applied to the railroad industry needs. The committee is made up of individuals from all segments of the railroad industry: both users and suppliers, the general public, and representatives of the Association of American Railroads.

The purpose of this specification is to provide a single comprehensive document of welding data that will be used throughout the railroad industry. Also, it should contribute to improvements in welding quality and performance. This document includes data from AWS D1.1/D1.1M, Structural Welding Code—Steel; AWS D1.2/D1.2M, Structural Welding Code—Aluminum; AWS D1.3/D1.3M, Structural Welding Code—Sheet Steel; and AWS D1.6/D1.6M, Structural Welding Code—Stainless Steel.

AWS D15.1-86 was titled simply Railroad Welding Specification. For the 1993 revision, the suffix Cars and Locomotives was added because the locomotive section had been introduced. A later revision was published in 2001, AWS D15.1:2001. The welding of rail is addressed in AWS D15.2, Recommended Practice for the Welding of Rails and Related Rail Components for Use by Rail Vehicles.

Several significant modifications have been made in AWS D15.1/D15.1M:2012. A vertical line in the margin indicates a revision from the 2007 edition. Limitations of essential variables for welding procedure qualification and welder performance qualification have been set up in table format (Tables 10.1 and 11.1, respectively). Friction stir welding has been included in the list of approved welding processes. Additional prequalified joint details for FCAW and GMAW have been added (see Figures 7.1G and 7.2A). Table 17.1 (Weld Crater Limitations) has been added. Clause 18 (Welding of Sheet Metal) has been revised.

Comments and suggestions for the improvement of this standard are welcomed. They should be sent to the Secretary, AWS D15 Committee on Railroad Welding, American Welding Society, 8669 NW 36 St, #130, Miami, FL 33166.
# Table of Contents

Personnel (Amendment) .......................................................................................................................... v  
Personnel (Original) .................................................................................................................................. vii  
Foreword .................................................................................................................................................. ix  
List of Tables ........................................................................................................................................... xxi  
List of Figures ......................................................................................................................................... xxii  

1. **General Requirements** .................................................................................................................... 1  
   1.1 Scope ............................................................................................................................................. 1  
   1.2 Units of Measurement .................................................................................................................... 1  
   1.3 Safety ........................................................................................................................................... 1  

2. **Normative References** ..................................................................................................................... 1  

3. **Terms and Definitions** .................................................................................................................... 4  

4. **General Information** ....................................................................................................................... 5  

5. **Requirements for All Welding** ....................................................................................................... 6  
   5.1 Processes ....................................................................................................................................... 6  
   5.2 Welding Procedure Qualification .................................................................................................. 6  
   5.3 Qualification of Welders and Welding Operators ......................................................................... 6  
   5.4 Design of Welded Joints ............................................................................................................... 7  
   5.5 Consumables ................................................................................................................................ 10  

6. **Technique and Workmanship** ......................................................................................................... 22  
   6.1 General ......................................................................................................................................... 22  
   6.2 Preparation of Base Metal ............................................................................................................. 22  
   6.3 Steel and Aluminum Assembly Criteria ..................................................................................... 24  
   6.4 Weld Profiles ............................................................................................................................... 25  
   6.5 Repairs—After Welding ............................................................................................................... 25  
   6.6 Arc Strikes .................................................................................................................................... 26  
   6.7 Cleaning and Protective Coatings ............................................................................................... 26  
   6.8 Weld Termination .......................................................................................................................... 27  
   6.9 Groove Weld Backing .................................................................................................................... 27  
   6.10 Heat Input Control for Quenched and Tempered Steel ............................................................... 27  
   6.11 Stress Relief Heat Treatment ...................................................................................................... 27  
   6.12 Peening ....................................................................................................................................... 27  
   6.13 Workmanship for Stud Arc Welding (SW) .................................................................................. 28  
   6.14 Workpiece Leads ....................................................................................................................... 28  
   6.15 Welding Air Brake Pipe .............................................................................................................. 28  

7. **Prequalified Welding Procedure Specifications—Joint Design Details** ....................................... 32  
   7.1 Groove Weld Size (Effective Weld Size) ..................................................................................... 32  
   7.2 Joint Designs ................................................................................................................................... 32  
   7.3 Fillet Welds .................................................................................................................................... 32  
   7.4 Details of Plug and Slot Welds .................................................................................................... 32  
   7.5 Complete Joint Penetration Groove Welds .................................................................................. 33  
   7.6 Partial Joint Penetration Groove Welds ...................................................................................... 33
12.10 Period of Effectiveness .......................................................... 133
12.11 Records ................................................................................. 133

13. Tack Welder Qualification ............................................................ 135
  13.1 General .................................................................................. 135
  13.2 Limitation of Variables .......................................................... 135
  13.3 Qualification Tests Required .................................................. 135
  13.4 Base Metal ............................................................................. 135
  13.5 Test Specimens: Number, Type, and Preparation ................. 135
  13.6 Method of Testing Specimens ................................................. 135
  13.7 Test Results Required ........................................................... 135
  13.8 Retests .................................................................................. 135
  13.9 Period of Effectiveness .......................................................... 135
  13.10 Records ................................................................................. 135

14. Inspection—General Requirements ............................................. 137
  14.1 Manufacturer’s Responsibility ............................................... 137
  14.2 Designated Inspector (Fabrication Inspector) ......................... 137
  14.3 Inspection of Welding ............................................................. 137
  14.4 Weld Size and Location ......................................................... 137
  14.5 Visual Inspection of Completed Welds ................................... 137
  14.6 Documentation ..................................................................... 137
  14.7 Verification Inspection ......................................................... 137
  14.8 Personnel Qualifications ....................................................... 137

15. NDE General Requirements ....................................................... 138
  15.1 Nondestructive Testing ......................................................... 138

16. NDE Methods ........................................................................... 139
  16.1 Radiographic Testing of Groove Welds .................................. 139
  16.2 Ultrasonic Testing of Groove Welds ....................................... 139
  16.3 Liquid Penetrant Testing of Welds ......................................... 141
  16.4 Magnetic Particle Testing of Welds ....................................... 141

17. Acceptance Criteria ................................................................... 151
  17.1 Temporary Welds ................................................................. 151
  17.2 Visual Inspection Acceptance Criteria ................................... 151
  17.3 Radiographic Inspection Acceptance Criteria ....................... 151
  17.4 Ultrasonic Inspection Acceptance Criteria ............................ 151
  17.5 Liquid Penetrant Acceptance Criteria ................................. 151
  17.6 Magnetic Particle Acceptance Criteria ................................. 151

18. Requirements for Welding Sheet Metal ....................................... 154
  18.1 Design of Welded Joints ......................................................... 154
  18.2 Joint and Procedure Qualification for Welding Sheet Metal .... 154

  19.1 General ................................................................................ 165
  19.2 Limitation of Variables ......................................................... 165
  19.3 Retests ................................................................................ 165
  19.4 Period of Effectiveness ........................................................ 165

20. Technique and Workmanship for Welding Sheet Metal ................. 168

21. Inspection of Welding Procedure Qualification and Equipment for Welding Sheet Metal ......................................................... 168
List of Tables

Table | Page No.
--- | ---
5.1 Minimum Weld Size for Partial Joint Penetration Groove Welds | 12
5.2 Allowable Weld Stresses (Steel) | 12
5.3 Allowable Weld Stresses (Aluminum) | 13
5.4 Minimum Mechanical Properties for Welded Aluminum Alloys (Gas Tungsten Arc or Gas Metal Arc Welding with No Postweld Heat Treatment) | 14
5.5 Minimum Mechanical Properties for Before Welding | 15
5.6 Allowable Atmospheric Exposure of Low Hydrogen Electrodes | 17
6.1 Limits on Acceptability and Repair of Cut Edge Discontinuities | 29
6.2 Joint Dimension Tolerances | 29
6.3 Maximum Exposure Time at Temperature Preparatory to Forming or Welding Aluminum Alloys | 30
7.1 Minimum and Maximum Plug Diameter and Slot Width | 34
7.2 Effective Size of Flare-Groove Welds Filled Flush | 34
7.3 Minimum Fillet Weld Size | 34
7.4 Legend for Figures 7.1A–7.1L and 7.2A–7.2K | 35
8.1 Prequalified Base Metal—Filler Metal Combinations for Matching Strength | 70
8.2 Prequalified Minimum Preheat and Interpass Temperature (Steel) | 76
10.1 PQR Essential Variable Changes Requiring WPS Requalification for SMAW, SAW, GMAW, FCAW, and GTAW | 88
10.2 Procedure Qualification—Number and Type of Specimens and Range of Thickness
  Qualified—Complete Joint Penetration Groove Weld | 93
10.3 Procedure Qualification—Number and Type of Specimens and Range of Thickness
  Qualified—Partial Joint Penetration Groove Weld | 94
10.4 Procedure Qualification—Number and Type of Specimens and Range of Thickness
  Qualified—Fillet Weld | 94
10.5 Procedure Qualification Type and Position Limitations | 95
10.6 As-Welded Strength of Aluminum Alloys (GTAW or GMAW) | 96
11.1 Performance Qualification—Limitation of Essential Variables | 118
11.2 Electrode Classification Groups for Welder and Tack Welder Qualification | 118
11.3 Number and Type of Specimens and Range of Thickness Qualified—Welder and Welding Operator Qualification | 119
11.4 Welder and Welding Operator Qualification—Type and Position Limitation | 120
11.5 Maximum Reinforcement—Pipe Welds | 120
17.1 Weld Crater Limitations | 152
17.2 Undercut and Porosity Limitations | 152
17.3 Ultrasonic Testing Acceptance—Rejection Criteria | 153
18.1 Essential and Non-Essential Variables for Inclusion in WPS—FCAW, GMAW, GTAW, and SMAW | 156
18.2 Procedure Qualification Tests | 158
19.1 Limitation of Variables for Welder Qualification—FCAW, GMAW, GTAW, and SMAW | 166
19.2 Welder Qualification Tests | 167
A.1 Numerical Indexing of Base Material Specifications (Steel) | 171
B.1 Grouping of Welding Electrodes and Rods for Qualification | 173
C.1 Equivalent Fillet Weld Leg Size Factors for Skewed T-Joints | 178
E.1 Hot-Rolled and Cold-Rolled Sheet M etal | 207
E.2 Galvanized Sheet M etal | 207
E.3 Guide to the Choice of Filler Metal for General Purpose Welding of Aluminum | 208
List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Fillers Less than 1/4 in [6 mm] Thick</td>
<td>18</td>
</tr>
<tr>
<td>5.2</td>
<td>Lap Width and Member Axial Load</td>
<td>18</td>
</tr>
<tr>
<td>5.3</td>
<td>Fillers 1/4 in [6 mm] or Thicker</td>
<td>19</td>
</tr>
<tr>
<td>5.4</td>
<td>Details for Fillet Welds</td>
<td>20</td>
</tr>
<tr>
<td>5.5</td>
<td>Distribution of Mechanical Properties in the Vicinity of an Aluminum Weld</td>
<td>21</td>
</tr>
<tr>
<td>6.1</td>
<td>Cut Edge Discontinuity</td>
<td>30</td>
</tr>
<tr>
<td>6.2</td>
<td>Acceptable and Unacceptable Weld Profiles</td>
<td>31</td>
</tr>
<tr>
<td>7.1A</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>36</td>
</tr>
<tr>
<td>7.1B</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>37</td>
</tr>
<tr>
<td>7.1C</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>38</td>
</tr>
<tr>
<td>7.1D</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>39</td>
</tr>
<tr>
<td>7.1E</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>40</td>
</tr>
<tr>
<td>7.1F</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>41</td>
</tr>
<tr>
<td>7.1G</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>42</td>
</tr>
<tr>
<td>7.1H</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>43</td>
</tr>
<tr>
<td>7.1I</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>44</td>
</tr>
<tr>
<td>7.1J</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>45</td>
</tr>
<tr>
<td>7.1K</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>46</td>
</tr>
<tr>
<td>7.1L</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>47</td>
</tr>
<tr>
<td>7.1M</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>48</td>
</tr>
<tr>
<td>7.1N</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>49</td>
</tr>
<tr>
<td>7.1O</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>50</td>
</tr>
<tr>
<td>7.1P</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>51</td>
</tr>
<tr>
<td>7.1Q</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>52</td>
</tr>
<tr>
<td>7.1R</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>53</td>
</tr>
<tr>
<td>7.1S</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>54</td>
</tr>
<tr>
<td>7.1T</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>55</td>
</tr>
<tr>
<td>7.1U</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>56</td>
</tr>
<tr>
<td>7.1V</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>57</td>
</tr>
<tr>
<td>7.1W</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>58</td>
</tr>
<tr>
<td>7.1X</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>59</td>
</tr>
<tr>
<td>7.1Y</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>60</td>
</tr>
<tr>
<td>7.1Z</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>61</td>
</tr>
<tr>
<td>7.1AA</td>
<td>Prequalified Complete Joint Penetration (CJP) Groove Welded Joint Details</td>
<td>62</td>
</tr>
<tr>
<td>8.1</td>
<td>Weld Pass in Which Depth and Width Exceed the Width of the Weld Face</td>
<td>79</td>
</tr>
<tr>
<td>10.1</td>
<td>Positions of Groove Welds</td>
<td>98</td>
</tr>
<tr>
<td>10.2</td>
<td>Positions of Fillet Welds</td>
<td>99</td>
</tr>
<tr>
<td>10.3</td>
<td>Positions of Test Plates for Groove Welds</td>
<td>100</td>
</tr>
<tr>
<td>10.4</td>
<td>Positions of Test Pipe or Tubing for Groove Welds</td>
<td>101</td>
</tr>
<tr>
<td>10.5</td>
<td>Test Positions for Fillet Welds (for Plate)</td>
<td>102</td>
</tr>
<tr>
<td>10.6</td>
<td>Test Positions for Fillet Welds (for Pipe and Tubing)</td>
<td>103</td>
</tr>
<tr>
<td>10.7</td>
<td>Location of Test Specimens on Welded Test Pipe</td>
<td>104</td>
</tr>
<tr>
<td>10.8</td>
<td>Location of Test Specimens for Welded Square and Rectangular Tubing</td>
<td>104</td>
</tr>
<tr>
<td>10.9</td>
<td>Location of Test Specimens on Welded Test Plate for 1/8 in to 3/8 in [3 mm to 10 mm] (inclusive) Thick Procedure Qualification</td>
<td>105</td>
</tr>
<tr>
<td>10.10</td>
<td>Location of Test Specimens on Welded Test Plate 3/8 in [10 mm] Thick and Over Procedure Qualification</td>
<td>106</td>
</tr>
<tr>
<td>10.11</td>
<td>Reduced-Section Tension Specimen</td>
<td>107</td>
</tr>
<tr>
<td>10.12</td>
<td>All-Weld-Metal Tension Specimen</td>
<td>108</td>
</tr>
<tr>
<td>10.13</td>
<td>Side-Bend Specimens</td>
<td>109</td>
</tr>
<tr>
<td>Figure</td>
<td>Page No.</td>
<td></td>
</tr>
<tr>
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</tr>
<tr>
<td>10.14</td>
<td>110</td>
<td></td>
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<tr>
<td>10.15</td>
<td>111</td>
<td></td>
</tr>
<tr>
<td>10.16</td>
<td>112</td>
<td></td>
</tr>
<tr>
<td>10.17</td>
<td>113</td>
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</tr>
<tr>
<td>11.1</td>
<td>121</td>
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<td>11.2</td>
<td>122</td>
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</tr>
<tr>
<td>11.4</td>
<td>124</td>
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<td>125</td>
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<td>126</td>
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<td>16.1</td>
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<td>159</td>
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</tr>
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<td>163</td>
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<td>18.14</td>
<td>163</td>
<td></td>
</tr>
<tr>
<td>18.15</td>
<td>164</td>
<td></td>
</tr>
</tbody>
</table>
Railroad Welding Specification for Cars and Locomotives

1. General Requirements

1.1 Scope. This specification covers the minimum welding requirements applicable to welded structures and cast components used in the railroad industry. It is not intended to apply to tank car tanks nor to the welding of rails. Recommended practices for welding railroad rails and related components are included in D15.2, Recommended Practice for the Welding of Rails and Related Rail Components for Use by Rail Vehicles. Specifications for welding tank car tanks and components welded directly thereto are outlined in the AAR Manual of Standards and Specifications for Welding, Section C—Part III, Specification M-1002 (AAR M-1002 C-III).

Welding symbols shall be those shown in the latest edition of AWS A2.4, Standard Symbols for Welding, Brazing, and Nondestructive Examination.

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

2. Normative References

The standards listed below contain provisions that, through reference in this text, constitute mandatory provisions of this AWS standard. For undated references, the latest edition of the referenced standard shall apply. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply.

American Welding Society (AWS) standards:

AWS A 2.4, Standard Symbols for Welding, Brazing, and Nondestructive Examination;

AWS A 3.0M/A 3.0, Standard Welding Terms and Definitions Including Terms for Adhesive Bonding, Brazing, Soldering, Thermal Cutting, and Thermal Spraying;

1 AWS standards are published by the American Welding Society, 8669 NW 36 St., # 130, Miami, FL 33166.