

# 48.0508 Welding Technology/Welder

## Occupational Orientation and Safety 100

**101** Prepare and mark time or job sheet, reports or records. 101

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**102** Perform housekeeping duties daily. 102

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**103** Follow verbal instructions to complete work assignments and rules. 103

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**104** Follow written instructions to complete work assignments and rules. 104

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**105** Demonstrate proper use and inspection of Personal Protection Equipment (PPE). 105

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**106** Demonstrate proper work area operation. 106

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**107** Demonstrate proper use of ventilation equipment. 107

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**108** Discuss proper Hot Zone operation. 108

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**109** Demonstrate knowledge of proper work actions for working in confined spaces. 109

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**110** Demonstrate knowledge of SDS sheets and precautionary labeling. 110

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**111** Demonstrate proper use and inspection of equipment used for each required welding and thermal cutting process. 111

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**112** Display familiarity with industrial and OSHA safety standards. 112

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**113** Demonstrate knowledge of oxyfuel safety procedures. 113

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**114** Demonstrate knowledge of arc welding safety procedures. 114

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**115** Demonstrate emergency action plan (all inclusive). 115

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## Principles of Welding 200

**201** Identify major types of metals (ferrous and nonferrous) used in welding. 201

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**202** Describe the basic principles of heat, expansion and contraction as it relates to metals. 202

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**203** Select appropriate welding technique, equipment and supplies for a given metal or process. 203

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**204** Describe the industry accepted welding codes, standards and procedures and their use. 204

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**205** Identify various joint designs (joint geometry). 205

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**206** Clean and prepare materials for welding and/or cutting. 206

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**207** Demonstrate proper use of hand tools. 207

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**208** Demonstrate proper use of standard measuring and layout tools. 208

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**209** Demonstrate proper use of power equipment. 209

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**Welding, Drawing, and  
Weld Symbol  
Interpretation** 300

**301** Interpret basic elements of a drawing or sketch. 301

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**302** Interpret welding symbol information. 302

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**303** Fabricate parts from a drawing or sketch (class project). 303

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**304** Identify structural metals used in the metal fabrication field. 304

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**305** Demonstrate knowledge of basic metric conversion. 305

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**Visual Examination,  
Inspection, and  
Testing** 400

**401** Evaluate cut surfaces and edges of prepared base metal parts for testing. 401

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**402** Identify and evaluate weld discontinuities as per accept/reject criteria. 402

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**403** Demonstrate visual inspection and destructive and non destructive techniques. 403

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**Shielded Metal Arc  
Welding (SMAW)** 500

**501** Perform safety inspections of SMAW equipment and accessories. 501

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**502** Make minor external repairs to SMAW equipment and accessories. 502

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**503** Set up and operate SMAW equipment. 503

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**504** Make fillet welds in all positions. 504

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**505** Make groove welds in all positions. 505

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**506** Pass performance test in all positions. 506

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**507** Perform qualification test. 507

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**Gas Metal Arc Welding  
(GMAW)** 600

**601** Perform safety inspections of GMAW equipment and accessories. 601

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**602 Make minor external repairs to GMAW equipment and accessories. 602**

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**603 Set up and operate GMAW equipment. 603**

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**604 Make fillet welds in all positions. 604**

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**605 Make groove welds in all positions. 605**

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**606 Pass performance test. 606**

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**Flux Cored Arc Welding  
(FCAW) 700**

**701 Perform safety inspections of Flux Cored Arc equipment and accessories. 701**

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**702 Make minor external repairs to Flux Cored Arc equipment and accessories. 702**

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**703 Set up and operate FCAW equipment. 703**

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**704 Make fillet welds in all positions. 704**

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**705 Pass performance test. 705**

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**706 Demonstrate a groove weld in all positions. 706**

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**Gas Tungston Arc  
Welding (GTAW) 800**

**801 Perform safety inspections of GTAW equipment and accessories. 801**

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**802 Make minor external repairs to GTAW equipment and accessories. 802**

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**803 Set up and operate GTAW equipment. 803**

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**804 Make fillet welds, in all positions, on ferrous materials. 804**

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**805 Pass performance test on ferrous materials. 805**

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**806 Set up and operate GTAW on nonferrous materials. 806**

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**807 Make fillet welds on nonferrous materials. 807**

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**808 Pass performance test on nonferrous materials. 808**

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**Manual Oxyfuel Gas  
Cutting (OFC) 900**

**901 Perform safety inspections of OFC equipment and accessories. 901**

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**902 Make minor external repairs to OFC equipment and accessories. 902**

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**903 Set up for manual OFC operations on steel. 903**

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**904 Operate manual OFC equipment. 904**

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**905 Perform straight cutting operations on steel. 905**

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**906 Perform shape cutting operations on steel. 906**

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**907** Perform bevel cutting operations on steel. 907

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**908** Perform piercing operations on steel. 908

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**Mechanized Oxyfuel Gas Cutting (OFC)** 1000

**1001** Perform safety inspections of mechanized OFC equipment and accessories. 1001

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**1002** Make minor external repairs to mechanized OFC equipment and accessories. 1002

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**1003** Set up and operate OFC equipment on steel. 1003

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**1004** Perform straight cutting operations on steel. 1004

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**1005** Perform bevel cutting operations on steel. 1005

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**Manual Plasma Arc Cutting (PAC)** 1100

**1101** Perform safety inspections of PAC equipment and accessories. 1101

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**1102** Make minor external repairs to PAC equipment and accessories. 1102

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**1103** Set up and operate manual PAC operations on ferrous and nonferrous materials. 1103

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**1104** Perform shape cutting operations on ferrous and nonferrous materials. 1104

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**Manual Air Carbon Arc Cutting (CAC-A)** 1200

**1201** Perform safety inspections of CAC-A equipment and accessories. 1201

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**1202** Make minor external repairs to CAC-A equipment and accessories. 1202

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**1203** Set up and operate manual CAC-A gouging and cutting operations on steel. 1203

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**1204** Perform gouging and scarfing operations, to remove base and weld metal, on steel. 1204

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**Brazing and Soldering** 1300

**1301** Set up and operate silver oxyfuel brazing and silver soldering equipment. 1301

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**1302** Perform brazing and silver soldering operations. 1302

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