

# STEEL GMA (MIG/MAG) WELDING THEORY AND PREPARATION

WQPA3

**How well a technician understands the theory and practice of weld safety, working with and maintaining welding equipment, and what constitutes proper welds will impact the overall consistency and quality of welds. The need for technical expertise and welding skills are essential to collision repair technicians working on major collision damage. Poor welds can not only lead to part failure and compromised safety, but can impact the structural integrity of the vehicle and collision energy management. Correct welding methods will also improve cycle time during a repair.**

## Course Content

### Overview

The content of this course pertains to collision repair professionals and offers fundamental knowledge related to steel GMA (MIG/MAG) welding theory and a practical delivery format. Upon completion of the course, students will have an improved understanding of Gas Metal Arc Welding (GMAW) and the proper use of GMA (MIG/MAG) welding equipment, as well as the best techniques for making butt joint with backing, open butt, fillet and plug/slot welds in both steel and bronze wire.

The module will cover all introduction to GMAW, including the application of electricity in the welding environment. GMA (MIG/MAG) welding equipment will also be assessed, such as setting up and turning a machine. Additionally, students will learn requirements for proper electrode wire, contact tip and shielding gas selection. Topics relating to performing welds—technique, surface preparation, heat management, will also be covered. Lastly, a student will understand how to identify and correct weld defects.

The remainder of the course will detail the different types of common collision repair welds—the plug, slot, fillet, open butt and butt

joint with backing welds. Students will learn how to make each type, as well as how to visually inspect and destructively test each weld.

Students will be given a coupon set to practice the welds required for the Weld Training and Certification (WCSA3)

### Recommendations

This course covers the theory and practical application of steel GMA (MIG/MAG) welding. Prior to attending this course, students should have an understanding of the collision repair process.

### Registration

To register for Steel GMA (MIG/MAG) Welding Theory and Preparation (WQPA3) click [here](#).

### Also Available

#### Steel Welding Training and Certification

The Steel Welding Training and Certification offers technicians the opportunity to demonstrate their ability to perform a combination of 17 welds. Welds will be visually and destructively tested. If all 17 welds pass inspection, the passing technician will earn qualification status for five years.

## Course Highlights

**Points:** Part of WCSA3

**Estimated Duration:** 4 Hours

**Format:** Classroom and Practical

**Meets the I-CAR training requirements for the following roles:**



STRUCTURAL TECHNICIAN



NON-STRUCTURAL TECHNICIAN

**After completing this course, you will be able to:**

- Identify different types of welds
- Understand how to set up and tune a welding machine
- Select the proper electrode wire, contact tip, and shielding gas
- Explain safety issues involved with steel welding
- Know how to properly prepare metal surfaces
- Explain the proper welding gun angles and techniques
- Identify and correct weld defects

