



# Accessible Motorcycle Sidecar: Welding Process

Process Sheet  
P18031-WLD-001

Revision: **A**

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## 1.0 PURPOSE

The purpose of this document is to detail the welding process used in the fabrication of the frame for MSD Team P18031: Accessible Motorcycle Sidecar

## 2.0 SCOPE

The document is intended to cover all welding to be performed in the fabrication process of the accessible motorcycle sidecar.

## 3.0 RESPONSIBILITY

This document is the responsibility of MSD Team P18031.

## 4.0 REVISION HISTORY

- 4.1 Revision: A
  - 4.1.1 Author: Jeremy Davin
  - 4.1.2 Change Notes: Initial Release
  - 4.1.3 Date: 12/7/2017

## 5.0 DEFINITIONS

PPE	Personal Protective Equipment
Tack	A small point weld used to hold parts in place
MIG	Metal Inert Gas
TIG	Tungsten Inert Gas

## 6.0 TOOLS, GAUGES, FIXTURES

- 6.1 MIG and/or TIG Welder and all required accessories
- 6.2 Precision ground welding table
- 6.3 Appropriate fixturing for use with welding table

## 7.0 SAFETY REQUIREMENTS

- 7.1 Appropriate PPE for Welding
  - 7.1.1 Welding Helmet
    - 7.1.1.1 Ensure filter shade is appropriate for the application.
  - 7.1.2 Clothing
    - 7.1.2.1 Long Sleeve Shirt and Long Pants
    - 7.1.2.2 Avoid pockets, pant cuffs, or similar where sparks and slag can gather.
    - 7.1.2.3 Ensure all exposed skin is covered to protect from UV Radiation
    - 7.1.2.4 Remove any rings or other jewelry



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- 7.1.3 Welding Gloves
- 7.1.4 Leather boots, preferably steel-toed
- 7.1.5 Reference ANSI Z49.1 for further welding PPE recommendations
- 7.2 Fire
  - 7.2.1 Remove all flammable materials from the welding area.
  - 7.2.2 Ensure an appropriate fire extinguisher is nearby.
- 7.3 Respiratory Safety
  - 7.3.1 Do not weld metals having any paints or coatings.
  - 7.3.2 Wear a respirator if welding fumes are excessive or ventilation is insufficient.

## 8.0 INSTRUCTIONS/PROCESS

- 8.1 Fitment: Ensure all parts to be welded fit together with no excessive gaps.
- 8.2 Cleaning:
  - 8.2.1 Wipe areas to be welded clean with acetone
  - 8.2.2 Remove any oxidation and/or slag from the metal's surface using a clean abrasive tool (Sandpaper, wire brush, flap disk, or equivalent)
    - 8.2.2.1 For thin surfaces, take care not to remove excessive material especially if using power tool.
  - 8.2.3 Wipe surface clean again with acetone
- 8.3 Welding:
  - 8.3.1 MIG or TIG weld as deemed appropriate for the application.
  - 8.3.2 Jig appropriately to maintain dimensions as specified in drawings.
  - 8.3.3 For frame structures, use tack welds as necessary to ensure dimensional stability when making final welds.
- 8.4 Inspection:
  - 8.4.1 Visual inspection is acceptable for all welds. Consult responsible engineer with any concerns resulting from visual inspection.