

Cape Cod Community College AMTS

Practical Projects Guide for AMT 209 Airframe Curriculum, Subject Item 20

Part 147, Appendix C, Part 1, Subject E – Welding

Item 20. Solder, braze, gas-weld, and arc-weld steel (Level 2)

## **Project 1**

Purpose: To acquaint the student with proper techniques and standards for soldering steel

References:

- (1) 14 CFR Federal Aviation Regulations for Aviation Maintenance Technicians, Aviation Maintenance Technician Handbook – Airframe, Volume 1 (FAA-H-8083-31) Chapter 5
- (2) AC 43.13-1B

Equipment and Tools Needed:

- (1) Fire Power Torch Set
- (2) Chop Saw
- (3) Grinder
- (4) Soldering Safety Equipment
- (5) Personal Protection Equipment (PPE)

Supplies and Materials Needed:

- (1) 2 inch into 6 inch flat stock
- (2) 1 inch into 4 inch square tubing
- (3) Solder

Procedure:

- (1) Cut steel pieces to length
- (2) Review standard safety practices before soldering and standard protective clothing.
- (3) Instructor shall demonstrate how to solder 1 inch into 4 inch square tubing to 2 inch into 6 inch flat stock together before students as per the AC 43.13-1B.
- (4) Solder 1 inch into 4 inch square tubing to 2 inch into 6 inch flat stock as per the AC 43.13-1B

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## **Project 2**

Purpose: To acquaint the student with proper techniques and standards for brazing and gas welding steel.

References:

- (1) 14 CFR Federal Aviation Regulations for Aviation Maintenance Technicians, Aviation Maintenance Technician Handbook – Airframe, Volume 1 (FAA-H-8083-31) Chapter 5
- (2) AC 43.13-1B

Equipment and Tools Needed:

- (1) Fire Power Torch Set
- (2) Chop Saw
- (3) Grinder
- (4) Welding Safety Equipment
- (5) Personal Protection Equipment (PPE)

Supplies and Materials Needed:

- (1) 1 inch into 4 inch flat stock
- (2) Welding rod (R-45)

Procedure:

- (1) Cut steel pieces to length
- (2) Review standard safety practices before welding and standard protective clothing.
- (3) Instructor shall demonstrate how to braze and gas weld two 1 inch into 4 inch flat stock together before students as per the AC 43.13-1B using the Fire Power Torch set.
- (4) Braze and gas weld two 1 inch into 4 inch flat stock pieces together as per the AC 43.13-1B

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### **Project 3**

Purpose: To acquaint the student with proper techniques and standards for arc welding steel

References:

- (1) 14 CFR Federal Aviation Regulations for Aviation Maintenance Technicians, Aviation Maintenance Technician Handbook – Airframe, Volume 1 (FAA-H-8083-31) Chapter 5
- (2) AC 43.13-1B

Equipment and Tools Needed:

- (1) Snap-on MIG Welder
- (2) Soldamatic
- (3) Chop Saw
- (4) Grinder
- (5) Welding Safety Equipment
- (6) Personal Protection Equipment (PPE)

Supplies and Materials Needed:

- (1) 1 inch into 1 inch into 4 inch angle steel

Procedure:

- (1) Students will be proficient at the intermediate level using the Soldamatic virtual trainers before entering the welding booth.
- (2) Cut steel pieces to length.
- (3) Review standard safety practices before welding and standard protective clothing.
- (4) Instructor shall demonstrate how to MIG weld two 1 inch into 1 inch into 4 inch angle steel together before students as per the AC 43.13-1B and Aviation Maintenance Technician Handbook using the Snap-on MIG welder
- (5) MIG weld two 1 inch into 4 flat stock pieces together as per the AC 43.13-1B and Aviation Maintenance Technician Handbook.

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