AUTOMOTIVE COLLISION SQUEEZE-TYPE RESISTANCE SPOT WELDING
Course Syllabus

Course Number: ACR-0345          OHLAP Credit: No
OCAS Code: None
Course Length: 15 Hours
Career Cluster: Transportation, Distribution, and Logistics
Career Pathway: Automotive Collision Repair
Career Major(s): Collision Repair Technician

Pre-requisite(s):

Course Description: In this course the student will learn how to set-up and tune a Squeeze-Type Resistance Spot Welder (STRSW) and where these welds can be performed. Students will learn to perform Squeeze-Type Resistance Spot Welds (STRSW) that will simulate the welds used during the original manufacturing process.


Course Objectives: A. Squeeze-Type Resistance Spot (STRS) Welding (I-CAR objectives)
1. Identify STRSW parts and their function(s).
2. Determine where and when STRSW can be used.
3. Explain welder set-up.
4. Perform squeeze-type resistance spot welding techniques.

B. Metal Welding and Cutting (ASE Welding/Cutting General Objectives)
1. Identify weldable and non-weldable materials used in collision repair. HP-I
2. Weld and cut high-strength steel and other metals using manufacturer's specifications and procedures. HP-I
3. Determine the correct welder type, electrode, wire type, diameter, and gas to be used in a specific welding situation. HP-I
4. Set up welding equipment. HP-I
5. Adjust the welder to "tune" for proper electrode stickout, voltage, polarity, flow rate, and wire-feed speed required for the material being welded. HP-I
6. Store, handle, and install high-pressure gas cylinders. HP-I
7. Determine work clamp (ground) location and attach. HP-I
8. Use the proper angle of the gun to the joint and direction of gun travel for the type of weld being made in the flat, horizontal, vertical, and overhead positions. HP-I
9. Protect adjacent panels, glass, vehicle interior, etc. from welding and cutting operations. HP-G
10. Protect computers and other electronic control modules during welding procedures according to manufacturer's specifications. HP-G
11. Clean and prepare the metal to be welded, assure good metal fit-up, apply weld-through primer if necessary, and clamp as required. HP-I
12. Determine the joint type (butt weld with backing, lap, etc.) for weld being made according
to manufacturer's/industry specifications. HP-I
13. Determine the type of weld (continuous, butt weld with backing, plug, etc.) for each specific welding operation according to manufacturer's/industry specifications. HP-I
14. Perform the following welds: continuous, stitch, tack, plug, butt weld with backing, and lap joints. HP-I
15. Perform destructive tests on each weld type. HP-I
16. Identify the causes of spits and sputters, burn through, lack of penetration, porosity, incomplete fusion, excessive spatter, distortion, and waviness of bead; make necessary adjustments. HP-I
17. Identify cause of contact tip burn-back and failure of wire to feed; make necessary adjustments. HP-I
18. Identify cutting process for different materials and locations in accordance with manufacturer's procedures; perform cutting operation. HP-G

All I-CAR and ASE objectives

Teaching Methods: The class will primarily be taught by the lecture and demonstration method and supported by various media materials to address various learning styles. There will be question and answer sessions over material covered in lecture and media presentations. Supervised lab time is provided for students to complete required projects.

Grading Procedures:
1. Students are graded on theory and shop practice and performance.
2. Each course must be passed with seventy (70%) percent or better.
3. Grading scale: A=90-100%, B=80-89%, C=70-79%, D=60-69%, F=50-59%.

Description of Classroom, Laboratories, and Equipment: Tulsa Technology Center campuses are owned and operated by Tulsa Technology Center School District No. 18. All programs provide students the opportunity to work with professionally certified instructors in modern, well-equipped facilities.

Available Certifications/College Credit: The student may be eligible to take state, national or industry exam after completion of the program. College credit may be issued from Oklahoma State University-Okmulgee or Tulsa Community College. See program counselor for additional information.

College Credit Eligibility: The student must maintain a grade point average of 2.0 percent or better.