

GRCC AUTOBODY
TECHNOLOGY

COMPETENCY PROFILE

INSTRUCTIONAL UNIT 104

14 CREDITS

(Tech Prep = 2 credits)

**NON-STRUCTURAL ANALYSIS
AND DAMAGE REPAIR**

Packet Title:

- A. Preparation
- B. Outer Body Panel Repairs, Replacements and Adjustments
- C. Metal Finishing and Body Filling
- D. Movable Glass and Hardware
- E. Metal Welding and Cutting

Total NATEF Tasks = 59 (19 HP-G, 40 HP-I)

Approximate # of Tasks per Credits = 4
(# of tasks completed ÷ 4 = # of credits earned)

CREDITS EARNED:

FALL _____

WINTER _____

SPRING _____

SUMMER _____

1/2001

NON-STRUCTURAL ANALYSIS AND DAMAGE REPAIR

For every task in Non-Structural Analysis and Damage Repair the following safety requirement must be strictly enforced:

Comply with personal environment safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation and the handling, storage, and disposal of chemicals in accordance with local, state, and federal safety and environment regulations.

Please list the project(s) you performed the following tasks on and date the task when you feel competent. Present this task sheet to your instructor for initialing frequently.

Preparation

	Instructor	
Date	Initials	
_____	_____	HP-G 1. Review damage report and analyze damage to determine appropriate methods for overall repair; develop repair plan. Project(s) _____
_____	_____	HP-I 2. Inspect, remove, store, and replace exterior trim and moldings. Project(s) _____
_____	_____	HP-G 3. Inspect, remove, and replace interior trim and components. Project(s) _____
_____	_____	HP-I 4. Inspect, remove and replace non-structural body panels and components that may interfere with or be damaged during repair. Project(s) _____
_____	_____	HP-G 5. Inspect, remove, and replace all vehicle mechanical and electrical components that may interfere with or be damaged during repair. Project(s) _____
_____	_____	HP-I 6. Protect panels and parts adjacent to repair area. Project(s) _____

_____ HP-I 7. Remove dirt, grease, and wax from those areas to be repaired.
Project(s) _____

_____ HP-I 8. Remove corrosion protection, undercoatings, and other protective coatings necessary to perform repairs.
Project(s) _____

_____ HP-G 9. Inspect, remove and replace reparable plastics and other components that are recommended for off vehicle repair.
Project(s) _____

_____ HP-G 10. Apply safety procedures associated with vehicle components and systems, i.e. ABS, air bags, refrigerants, batteries, tires, oil, anti-freeze, engine coolants, etc.
Project(s) _____

_____ HP-G 11. Apply environmental practices associated with vehicle components and systems such as substrates fluids, refrigerants, batteries, etc.
Project(s) _____

Outer Body Panel Repairs, Replacements, and Adjustments

_____ HP-I 1. Determine the extent of direct and indirect damage and direction of impact.
Project(s) _____

_____ HP-I 2. Inspect, remove and replace bolted, bonded and welded steel panel or panel assemblies.
Project(s) _____

_____ HP-G 3. Determine the extent of damage to aluminum body, body panels; repair, weld or replace in accordance with manufacturer's specifications.
Project(s) _____

_____ HP-I 4. Inspect, remove, replace, and align hood, hood hinges, and hood latch.
Project(s) _____

_____ HP-I 5. Inspect, remove, replace, and align lid, lid hinges, and lid latch.

Project(s) _____

_____ HP-I 6. Inspect, remove, replace, and align doors, tailgate, hatches, and related hardware.

Project(s) _____

_____ HP-I 7. Inspect, remove, replace, and align bumper bars, covers, reinforcement guards, isolators, and mounting hardware.

Project(s) _____

_____ HP-I 8. Check and align front fenders, headers, and other panels.

Project(s) _____

_____ HP-I 9. Straighten and rough-out contours of damaged panel to a surface condition for body filling or metal finishing using power tools, and stud welder.

Project(s) _____

_____ HP-I 10. Weld cracked or torn steel body panels; repair broken welds.

Project(s) _____

_____ HP-I 11. Restore corrosion protection.

Project(s) _____

_____ HP-I 12. Cut out damaged sections of sheet steel body panels and weld in replacements according to vehicle and industry specifications.

Project(s) _____

_____ HP-G 13. Replace door skins according to manufacturer's procedures.

Project(s) _____

_____ HP-G 14. Replace intrusion beams in accordance with vehicle manufacturer's specifications.

Project(s) _____

_____ HP-G 15. Replace or repair rigid and flexible plastic panels according to vehicle and industry specifications.

Project(s) _____

_____ HP-I 16. Restore sealers, mastic, sound deadeners, and foam fillers.
Project(s) _____

_____ HP-G 17. Diagnose and repair chassis water and dust leaks.
Project(s) _____

Metal Finishing and Body Filling

_____ HP-I 1. Remove paint from the damaged area of a body panel.
Project(s) _____

_____ HP-I 2. Locate and reduce surface irregularities on a damaged body
panel.
Project(s) _____

_____ HP-I 3. Demonstrate hammer and dolly techniques.
Project(s) _____

_____ HP-G 4. Heat shrink stretched panel areas to proper contour.
Project(s) _____

_____ HP-G 5. Cold shrink stretched panel areas to the proper contours.
Project(s) _____

_____ HP-I 6. Mix body filler.
Project(s) _____

_____ HP-I 7. Apply body filler, cheese-grate during curing.
Project(s) _____

_____ HP-I 8. Rough sand cured body filler to contour; finish sand.
Project(s) _____

Movable Glass and Hardware

_____ HP-G 1. Inspect, adjust, and repair or replace window regulators,
run channels, glass, power mechanisms, and related controls.

Project(s) _____

_____ HP-G 2. Inspect, repair or replace power-driven accessories and related controls (including electrically heated glass).

Project(s) _____

_____ HP-G 3. Diagnose and repair glass water leaks, dust leaks, and window noises; inspect, repair, and replace weather stripping.

Project(s) _____

_____ HP-G 4. Inspect, repair or replace, and adjust removable, manually or power operated roof panel and hinges, latches, guides, handles, retainer, and of sun roofs.

Project(s) _____

_____ HP-G 5. Inspect, remove, reinstall, and align convertible top and related mechanisms.

Project(s) _____

Metal Welding and Cutting

_____ HP-I 1. Identify weldable and non-weldable materials used in collision repair and refinish components.

Project(s) _____

_____ HP-I 2. Weld and cut high-strength steel and other metals using manufacturer's procedures.

Project(s) _____

_____ HP-I 3. Determine the correct welder type, electrode, wire type, diameter, and gas to be used in a specific welding situation.

Project(s) _____

_____ HP-I 4. Set up weld equipment.

Project(s) _____

_____ 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.

Project(s) _____

- _____ HP-I 6. Store, handle, and install high-pressure gas cylinders.
Project(s) _____
- _____ HP-I 7. Determine work clamp (ground) location and attach.
Project(s) _____
- _____ HP-I 8. Use the proper angle of the gun to the joint and the direction
of the gun travel for the type of weld being made in the flat,
horizontal, vertical, and overhead positions.
Project(s) _____
- _____ HP-I 9. Protect adjacent panels, glass, vehicle interior, etc. from
welding and cutting operations.
Project(s) _____
- _____ HP-I 10. Protect computers and other electronic control modules
during welding procedures according to manufacturer's
specifications.
Project(s) _____
- _____ HP-I 11. Clean and prepare the metal for welding; fit, align, and
clamp as required.
Project(s) _____
- _____ HP-I 12. Determine the joint type (reinforced-butt, lap, etc.) for
weld being made according to manufacturer's/industry
specifications.
Project(s) _____
- _____ HP-I 13. Determine the type of weld (continuous, reinforced-butt,
plug, etc.) for each specific welding operation according to
manufacturer's/industry specifications.
Project(s) _____
- _____ HP-I 14. Perform the following welds: stitch, tack, plug, spot,
reinforced-butt, and lap-joints.
Project(s) _____
- _____ HP-I 15. Perform destructive tests on each type of weld.
Project(s) _____
- _____ 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.
Project(s) _____

_____ HP-I 17. Identify causes of contact tip burn-back and failure to wire
feed; make necessary adjustments.
Project(s) _____

_____ HP-G 18. Identify cutting process for different materials and
locations in accordance with manufacturer's procedures; perform
cutting operation.
Project(s) _____

Approved 9/29/09