

AB 51: Non-Structural Damage Repair
First of Five Eurocar Technician Training Courses
Monday & Wednesday 1 - 5 PM in AT 54/ AT 50
(No Classes: Labor Day Sept 4th)

Course Syllabus - Fall 2006
Instructor: Charles C. Robertson

New Focus:

- *I-CAR Enhanced-Delivery Modules Embedded*
- *Celette Bench Systems Training Embedded*
- *VeriFacts Automotive – Principles Embedded*

Professor: Charles C. Robertson

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- ITOutsource, Inc. Website: www.itout.net

Office Hours: Mon, Tue, Thur from 5-6pm Office D

For students with learning or other disabilities, please notify instructor so that reasonable accommodations can be made to assist you in your learning experience.

COURSE OBJECTIVES

As a result of successfully completing this course, students will be able to perform the following tasks to industry standards and within an appropriate amount of time:

- A. Properly Prepare a vehicle for repair work** (Auto Refinishing 1a; and AR 1b)
 - 1. Protect panels and parts adjacent to repair area.
 - 2. Remove dirt, grease, and wax from those areas to be repaired.
 - 3. Remove corrosion protection, undercoating, sealers, and other protective coatings necessary to perform repairs.
- B. Identify automotive body parts** (Auto Collision Repair 1c)
 - 1. Outer body panels, bolt-on panels, welded - on or bonded - on panels
 - 2. Outer body trim
 - 3. Inner structure, frame / unibody construction components
 - 4. Mechanical and suspension components
 - 5. Electrical and electronic components
- C. Demonstrate an understanding of and proper use of auto body nomenclature** (AR 1b; AR 2b)
 - 1. Auto body terminology
 - 2. Tools and Equipment
 - 3. Materials and Supplies
 - 4. I-CAR terminology
- D. Perform Oxyacetylene welding and brazing and GMAW (MIG) welding** (ACR 1a)
 - 1. Apply knowledge of safe practices and vehicle protection measures while welding
 - 2. Make a weld and tune the welder
 - 3. Produce a butt joint with backing
 - 4. Produce a fillet weld lap joint
 - 5. produce plug welds on lap joint
- E. Gas Welding, Cutting and Heating Processes**
 - 1. Oxyacetylene Welding
 - 2. Braze body panels
 - 3. Oxyacetylene cut steel parts/ panels
 - 4. Understand process to set up and use a plasma arc cutter to cut sheet metal
- F. Outer Body Panel Repairs, Replacements and Adjustments** (ACR 2a; AR 3d)
 - 1. Comply with personal and environmental safety practices associated with clothing, eye protection, use of chemicals, hand tools and power equipment.
 - 2. Determine the extent of direct and indirect damage and direction of impact; develop repair plan.
 - 3. Straighten & rough-out contours of damaged panel to a surface condition for body filling or metal finishing using power & hand tools & stud welder.
 - 4. Weld cracked or torn steel body panels; repair broken welds.
 - 5. Restore corrosion protection.
 - 6. Braze body panels only in locations recommended by vehicle manufacturers.
 - 7. Cut out damaged sections of sheet steel body panels and weld in replacements according to vehicle and industry specifications.
 - 8. Restore sealers, mastic, sound deadeners and foam fillers.

G. Metal Finishing and Body Filling (ACR 2b; AR 1a; AR 1c; AR 1d)

1. Comply with personal and environmental safety practices associated with clothing, eye protection, use of chemicals, hand tools and power equipment.
2. Grind paint from the damaged area of a body panel.
3. Pick, file and disc sand the damaged area of a body panel to locate and reduce surface irregularities.
4. Demonstrate hammer and dolly techniques.
5. Heat shrink stretched panel areas to proper contour.
6. Cold shrink stretched panel areas to proper contour.
7. Mix and apply body filler; and cheese grate during curing.
8. Rough sand cured body filler to contour; finish sand
9. Featheredge repair area, mix and apply primer.

H. Introduction to BMW TIS (Technician Information System) available online and downloading of specific tasks and procedures.

Recommended Reference Materials:

- I-CAR course workbooks: 1A – Preparation, 1B - Panel Replacement and, Alignment, 1C - Working with Trim and Hardware, 1D - Metal Straightening, 1E - Using Body Fillers, 3A - MIG (GMAW) Welding

Required materials and tools:

- Basic welding equipment -- gloves, welding goggles, striker, tip cleaner
- Basic hand tools -- 1/4 " drive socket set, screwdriver set, pliers, combination wrenches (metric & standard) , safety glasses must be worn in lab at all times.

ASSIGNMENT and TEST POLICY

- Attendance required at each class period
- Late assignments lose 1 grade point each class day that it's late
- Exceptions to late items must be approved by instructor in advance
- Make-up and extra credit work must be approved in advance by the instructor.
- Highest grades awarded to those who help others learn repair processes after demonstrating proficiency themselves.
- Performance Evaluation and Final Exam Required for Grade Above 'F'

ASSIGNMENTS

	ASSIGNMENT	PERCENT	POINTS
1	Basic Skills Performance Evaluation	18	300
2	Quizzes – DELMAR Video Series (6 each)	12	200
3	Live Work – Project Evaluations	18	300
4	I-CAR Enhanced-Delivery Modules	18	300
5	Mid Term Exam	3	50
6	Celette Bench Introduction Training	12	200
7	Help others learn repair processes	6	100
8	Participation (Minimum 80% of Classes)	9	150
9	FINAL EXAM	6	100
	TOTAL	100%	1700

I-CAR Enhanced-Delivery Training - Testing Series (6 of 8 Required Modules)

CORE TRAINING PROGRAMS:

<i>Fundamentals of Collision Repair</i>	FCR01
<i>Vehicle ID, Estimating Systems, Terminology</i>	DAM01
<i>Frontal Impact Analysis</i>	DAM02
Mechanical Systems Analysis	DAM03
<i>Restraints, Interior, Glass, Side + Rear Impact Analysis</i>	DAM04
Aluminum Panels and Structural Damage Analysis	DAM05
<i>Hazardous Materials, Personnel Safety, Refinishing Safety</i>	WKR01
<i>Corrosion Protection Systems</i>	CPS01

DELMAR VIDEO SERIES INDEX: 6 Digital Videos/ Tests

ACR #1	a) <i>Collision Repair Safety</i> b) <i>Body Shop Power Tools</i> c) <i>Vehicle Construction</i>
ACR #2	a) <i>Metal Straightening Fundamentals</i> b) <i>Collision Repair Materials</i>
ACR #3	b) <i>Paint Preparation, Masking</i>

User Access to Delmar Digital Videos:

1. Must have Windows User Account Activated to access Campus Network.
2. Double-click on "Training Mastery" Icon to open Delmar Programs
3. Enter your unique Cerritos College Windows User ID. Student Example: Name is Jose Gonzalez, username would be "jgonzale", first initial of first name, plus first 7 letters of last name enter this. Each time to access these videos, use the same user ID, it will ask you to verify your name, if correct click on "accept" – your quiz scores will follow you whenever you log in.
4. Select the Desired Section and Presentation. You must finish each section to receive credit. Stopping in the middle will require retaking the entire topic.
5. You may take a Pre-Test to check your knowledge prior to viewing each video, or you may view the video first, then test afterwards. The system will record both scores under your ID. The best scores of each re-test remain. Just skip the lesson and take the pre-test.

Campus Network User ID (Student #): _____ **Password (DOB Pin):** _____

I-CAR®

Recommended Training Paths

Inter-Industry Conference On Auto Collision Repair

The I-CAR Vision is that every person in the collision industry has the necessary technical knowledge and skills relevant to their position to achieve a complete and safe repair.

CORE TRAINING PROGRAMS

- | | |
|---|--|
| Fundamentals of Collision Repair
IC21 (1) | Restraints, Interior, Glass, Side and Rear Impact Analysis
IC41A (1) |
| Vehicle Identification, Estimating Systems, and Terminology
IC41B (1) | Aluminum Panels and Structures Damage Analysis
IC41C (1) |
| Frontal Impact Analysis
IC41D (1) | Hazardous Materials, Personal Safety, and Refinish Safety
IC41E (1) |
| Mechanics of Systems Analysis
IC41F (1) | Corrosion Protection
IC41G (1) |

NON-STRUCTURAL

STRUCTURAL

REFINISHING

MECHANICAL

ESTIMATING, MANAGEMENT, APPRAISAL

Material covered in Core Training Programs provides a foundation for I, II, III, and IV programs.

<p>Oxyacetylene/Plasma Arc Cutting IC321 (1)</p> <p>Trim and Hardware IC321 (2)</p> <p>Automotive Foams IC321 (1)</p> <p>Cosmetic Straightening Steel IC321 (2)</p> <p>Bolted-On Part Replacement IC321 (2)</p> <p>Moveable Glass IC321 (2)*</p>	<p>Stationary Glass IC322 (1)*</p> <p>Measuring IC321 (1)</p> <p>Structural Straightening Steel IC321 (1)</p>	<p>Detailing IC321 (1)*</p>	<p>Electrical Circuits and Diagnostic Usage IC321 (2)</p> <p>Diagnosis, Testing, and Repair of Common Electrical Loads IC321 (2)</p> <p>Power Accessories IC321 (2)</p> <p>Lighting, Starting, and Charging Systems IC321 (2)</p> <p>Brakes IC321 (1)</p> <p>Air Conditioning IC321 (2)</p> <p>Heating and Cooling Systems IC321 (2)</p> <p>Tires and Wheels IC321 (1)</p> <p>Suspension Systems IC321 (2)</p> <p>Rack and Pinion and Parallel-Shaft Steering Systems IC321 (2)</p>	<p>Collision Facility Management</p> <p>ALL</p> <p>Non-Structural I, Structural I, Refinishing I, and Mechanical I Programs</p> <p>PLUS</p> <p>Compressed Air Systems, Vehicle Lifts, and Other Capital Equipment IC321 (1)</p> <p>Other Estimating Management, Appraisal</p> <p>ALL</p> <p>Non-Structural I, Structural I, Refinishing I, and Mechanical I Programs</p>
<p>Plastic Welding Repair IC322 (2)</p> <p>Plastic Adhesive Repair IC322 (2)</p> <p>Adhesive Bonding IC321 (1)</p> <p>Steel GMA (MIG) Welding IC321 (1)</p> <p>Squeeze-Type Resistance Spot Welding IC321 (2)</p> <p>Welded and Adhesively Bonded Panel Replacement IC321 (2)</p> <p>Wind Noise and Water Leaks IC321 (2)*</p>	<p>Steel Unibody Front and Rear Rails, Floors, and Front Structures IC321 (1)</p> <p>Steel Unibody A, B, C, D Pillars, and Roover Panels IC321 (1)*</p> <p>Steel Full-Frame Sectioning IC321 (1)*</p> <p>Full-Frame Replacement IC321 (1)*</p>	<p>Refinishing Equipment and VOC Regulations IC321 (2)</p> <p>Surface Preparation and Masking IC321 (1)*</p>	<p>Wheel Alignment and Diagnostic Angles IC321 (2)</p> <p>Driveshafts and Engine Mounts IC321 (2)</p> <p>Fault Code Retrieval, Diagnosis, and Testing Electronic Systems IC321 (2)</p> <p>Electronically Controlled Steering and Suspension Systems IC321 (1)</p> <p>Restraints IC321 (2)*</p> <p>Anti-Lock Brakes and Traction Control Systems IC321 (2)</p>	<p>ALL</p> <p>Non-Structural II, Structural II, Refinishing II, and Mechanical II Programs</p>
<p>Cosmetic Straightening Aluminum IC321 (1)</p> <p>Aluminum GTA (TIG) Welding IC321 (1)</p> <p>Aluminum GMA (MIG) Welding IC321 (1)</p> <p>Replacing Aluminum Exterior Panels IC321 (2)</p>	<p>Structural Straightening Aluminum IC321 (1)</p> <p>Structural Aluminum Design and Repair Processes IC321 (1)*</p> <p>Structural Aluminum Repair Processes IC321 (1)*</p>	<p>Color Theory, Application, Tinting, and Blending IC321 (2)*</p>	<p>Fuel and Exhaust Systems IC321 (1)</p> <p>Drivability Issues, No-Starts, and Emissions IC321 (2)</p> <p>Advanced Restraint Systems IC321 (2)*</p> <p>Electric and Electric Hybrid Vehicles IC321 (1)</p>	<p>ALL</p> <p>Non-Structural III, Structural III, Refinishing III, and Mechanical III Programs</p>
<p>Automotive Steel GMA (MIG) Welding Qualification Test Prep IC321 (2)</p> <p>Automotive Steel GMA (MIG) Welding Qualification Test IC321 (2)</p> <p>Automotive Aluminum GMA (MIG) Welding Qualification Test Prep IC321 (2)</p> <p>Automotive Aluminum GMA (MIG) Welding Qualification Test IC321 (2)</p>	<p>Structural Parts Steel Qualification Test Prep IC321 (2)*</p> <p>Structural Parts Steel Qualification Test IC321 (2)*</p>			

SPECIALTY TRAINING PROGRAMS

- Customer Service Personnel
- Customer Relations and Collision Repair
IC321 (2)
- I-CAR Developed OEM Training
- Ford
General Motors
Volvo
- FOR MORE COURSE AND COMPLETE INFORMATION ON I-CAR DEVELOPED OEM TRAINING VISIT I-CAR ONLINE AT WWW.I-CAR.COM

*Programs have at least one recommended prior program listed in another task area column - see www.i-car.com or the I-CAR Training Catalog for details.

HOW TO USE THE TRAINING PATHS:
 Program Name
 Course Code (Gold Class Ford Notes)*

Steel Full-Frame Sectioning
IC321 (1)*

Steel Full-Frame Sectioning (see a program code or SP321) (see the (1) after the program code) can be determined that Steel Full-Frame Sectioning is listed above Steel Full-Frame Sectioning. This indicates that an alternate (1) after the course code is located in the Structural Steel area column. After reading the program description on the I-CAR web site or in the training catalog, you will find that Steel GMA (MIG) Welding is one of the recommended prior programs for Steel Full-Frame Sectioning. Steel GMA (MIG) Welding is located in the Non-Structural task area column.

Search www.i-car.com for program availability. To request a class in your area, call your I-CAR regional manager at 900.422.7455. For all other inquiries, contact I-CAR customer care at 900.422.7972.

GRADE DESCRIPTIONS

DESCRIPTION OF PERFORMANCE	PERCENT	GRADE
Performance has been at the <u>highest level</u> , showing sustained excellence in meeting all course requirements & in <u>assisting other students</u> in the learning process.	90-100	A
Performance has been at a <u>high level</u> , showing consistent and effective achievement in meeting course requirements.	80-89	B
Performance has been at an <u>adequate level</u> , meeting the basic requirements of the course.	70-79	C
Performance has been <u>less than adequate</u> , meeting only the minimum course requirements.	60-69	D
Performance has been such that <u>minimal course requirements have not been met</u> .	0-59	F

AUTOMOBILE COMPONENT IDENTIFICATION

Check Off components as they are covered during class:

UNIT 1

Outer Body Panels- Bolt-On

- Door Assemblies / Skins
- Fenders
- Trunk Lid
- Hood
- Cowl Vent Panels
- Bumpers
- Sunroof Panels
- Filler Panels

- Front / Rear Valance
 - Header Panel
- Welded & Bonded Panels*
- Glass - Fixed & Moveable
 - Quarter Panels
 - Roof Panel
 - Rear Body Panels

UNIT 2

Outer Body Trim

- Moldings
- Emblems
- Name Plates
- Outer Handles & Lock Cylinders
- Striping and Decals
- Lighting and Lamps
- Mirrors

TOOL IDENTIFICATION

Hand Tools:

- Pick Hammer
- Cross Peen Hammer
- Roughing Hammer
- Universal Dolly
- Slapper
- Falling Spoon
- Large Spoon/ Pry Bar
- Cheese Grater
- Phillips Screwdriver
- Standard Flat Screwdriver
- Plastic Spreader
- 6" Rubber Sanding Block

- Long Board
- Body File
- Slide Hammer
- Morgan Knocker
- Tin Snips
- Locking Pliers (vice grips)
- Side Cutting Pliers
- Needle Nose Pliers
- Body Pick/ Pry Bar
- 4 Ton Porto-Power

Power Tools:

- Air Drill

- Wire Wheel of Knotted Const.
- 6" **D**ual **A**ction Orbital Sander
- 8" DA Sander
- Inline Sander
- 9" Grinder
- 3" Cutt-Off tool
- 3/8" air ratchet
- Bay Lift
- GMAW (MIG) Welder
- Plasma Cutter
- Resistance Spot Welder



VeriFacts Automotive
Shop Coaching Score Sheet

Coach: _____

Month: _____

Shop:		Location:
Date:	Time In:	Time Out:
Was this a scheduled visit? <input type="checkbox"/> Yes <input type="checkbox"/> No		Was the Manager or Assignee available to review the visit? <input type="checkbox"/> Yes <input type="checkbox"/> No
Manager or Assignee Name (Printed):		Shop Signature:

Quality control card properly filled out? Y / N / 0 _____
Grade on a scale of 1-10 on a percentage level of vehicles observed.

Phase One

Body	Paint	Detail/Done
_____	XXXXXXXXXXXXXXXXXXXX	1. Proper three-dimensional measuring
_____	XXXXXXXXXXXXXXXXXXXX	2. Restore vehicle dimensions
_____	XXXXXXXXXXXXXXXXXXXX	3. Drill/grind spot welds
_____	XXXXXXXXXXXXXXXXXXXX	4. Proper panel removal
_____	_____ XXXXXXXXX	5. Proper preservation of factory e-coat
_____	XXXXXXXXXXXXXXXXXXXX	6. Proper grind of weld nugget after panel removed
_____	XXXXXXXXXXXXXXXXXXXX	7. Proper application of corrosion protection primer (e.g., epoxy, PM13, weld-through primer)
_____	XXXXXXXXXXXXXXXXXXXX	8. Proper mating surface and structure preparation
_____	_____	9. Proper welded joint fit up
_____	_____	10. Proper and complete welds
_____	_____ XXXXXXXXX	11. Proper application of epoxy or appropriate non-acid, bare metal primer before seam sealer
_____	_____	12. Proper application of seam sealer and corrosion protection

Phase Two

_____	_____	13. Weld count and spacing
_____	_____	14. Appropriate repair methodology
_____	_____	15. Exterior/underhood/inner structure color match and complete
_____	_____	16. Complete structural repair
_____	_____	17. Touch-up of bolt and screw heads that were worked. Proper bolts, screws and fasteners installed.
_____	_____	18. Vehicle interior protection (parts in cars, openings covered, etc.)
_____	_____	19. Battery disconnected & fluid lines capped off when appropriate
_____	_____	20. Shop general area cleanliness

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Please fax to 888-622-6905.

Last Update: August 2005

RIDE-ALONG ASSIGNMENT

VeriFacts Coaching Visit

Name: _____

Date: ___/___/___

VeriFacts Coach: _____

Shop Name: _____

Manager Name: _____

Class: AB 51 Non-Structural Repair

EXTRA CREDIT / NO CREDIT

(determined by instructor)

(use this page as a cover sheet)

RIDE-ALONG ASSIGNMENT

NAME: _____ DATE: ___/___/___ TIME: __:__

DESTINATION:

PURPOSE OF THE RIDE-ALONG:

Observe and tour a collision repair facility, observe typical daily shop operations, observe coaching aspects of VeriFacts visit, identify critical areas of repair, determine how technicians can improve repair process by performing 20 identified key tasks. Develop additional experience observing heavily damaged vehicles in process of repair.

QUESTIONS TO ASK DURING RIDE-ALONG (make the list prior to ride-along):

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Use the “M.A.D.E.” Format For Written Communication:

Write a one or two page essay on 2 or 3 important observations made from your ride-along that focus on the theme “**How my perspective on the Collision Repair Industry has changed as a result of this activity**”. Follow the “M.A.D.E” format below.

Message: a brief summary statement of your main **message** .

Action: describe the **action** you would take as a result of this experience.

Detail: give any **detail** related to the message and action described above. (the who, what, when, where, why, how, and how much of the message)

Evidence: attach any supporting **evidence** to your document. (brochure, bus. card)

GRADE SUMMARY SHEET

NAME: _____ TOTAL POINTS: _____ GRADE: _____

NO	ASSIGNMENT and RECORD OF MY SCORES:	DUE	VALUE	SCORE
1	BASIC SKILLS DEVELOPMENT: (Scores: 3 = Best, 2 = Needs Work, 1 = Inadequate) a) Gas Welding: <u>Steel</u> : Corner _____, Butt _____, <u>Brass</u> : Lap _____ b) MIG Welding: Plug _____, Lap _____, Butt with Backing _____ c) Metal Finishing: _____, _____, _____ d) Roughing Sheet Metal: _____, _____, _____ e) Mixing & Applying Plastic: _____, _____, _____ f) Block Sanding Plastic Filler: .. _____, _____, _____ g) Finish Sanding Plastic Filler:.. _____, _____, _____ h) Featheredging Plastic Repair: _____, _____, _____ I) Application of Primer: _____, _____, _____ j) Guide-Coat and Block Sand _____, _____, _____	Weekly	20%	
2	PARTICIPATION--BY WEEK (Must attend 80% of Classes – Cross out M or W as present): <u>1 M/W 2 M/W 3 M/W 4 M/W 5 M/W 6 M/W 7 M/W 8 M/W 9 M/W 10 M/W 11 M/W 12 M/W 13 M/W 14 M/W 15 M/W 16 M/W 17 M/W 18 M/W</u>	Daily	9%	
3	QUIZZES Including DELMAR VIDEO SERIES: 1__ 2__ 3__ 4__ 5__ 6__	Periodic	6%	
4	I-CAR Enhanced Delivery Modules: 1__ 2__ 3__ 4__ 5__ 6__	Periodic	18%	
5	LIVE WORK / PROJECTS (list Vehicles / Work and Date Evaluated): 1 _____ / __, 2 _____ / __, 3 _____ / __	On-Going	18%	
6.	Mid Term Examination	Wk 10	4%	
7.	Celette Bench Introduction (Setup Training)	Periodic	10%	
6	HELPED OTHERS TO LEARN REPAIR PROCESSES:	Daily	5%	
7	FINAL EXAM	Wk 18	10%	
Total Points:			100%	

Scores and Grade Approved By: _____ / ____ / ____

PERFORMANCE TEST

PROCEDURE: METAL STRAIGHTENING AND USE OF BODY FILLER

1. This performance exam is designed to test your ability to follow established procedures

Directions to Students: straighten sheet metal damage, properly prepare it for two-part plastic filler, mix and apply plastic body filler, rough block and finish sand the filler to proper contour and prepare the panel for the paint preparation. It is also the intent of this performance exam to determine your ability to exercise SAFETY PRACTICES in a work environment and to properly use the tools identified for this process to properly repair a damaged panel within industry time and quality standards.

2. This is a timed event. When instructed to do so, gather the appropriate materials, tools and the damaged panel to be repaired and begin the repair process -- following the established procedures demonstrated by the instructor.

3. The following includes two lists identifying the Materials and Tools to be Used, and Standards to be Met for this exam.

MATERIALS AND TOOLS TO BE USED	STANDARDS TO BE MET
1. Roughing Hammer	1. Sheet metal roughed out to approximate original contour prior to next steps
2. Pick Hammer	2. Pick up small indentations using pick hammer, pry bar or spoon without stretching metal beyond normal elasticity
3. Body File	3. Use bare hand to determine remaining high or low spots -- then repair them
4. Universal Dolly	4. Safely and properly use a 9" air grinder with 24 grit disk to prepare panel for plastic filler application
5. Spoon	5. Properly mix and apply two-part body filler to prepared area of damaged panel without debris or "hot" spots or unmixed material
6. 9" Grinder with 24 grit open coat disk	6. When sufficiently cured, block sand the filler to proper contour and shape
7. Rubber sanding block	7. Upon reaching proper shape and contour, finish sand the filler with finer grit paper.
8. Sheet 36 or 40 grit long board paper	8. Properly feather edge the paint edge around the repaired area - preparing for paint prep
9. Sheet of 80 or 100 grit long board paper	9. Examine the final product -- assuring match to industry standards as discussed in class
10. Orbital DA Sander with 80 grit sandpaper	10. Make any final corrections to repair
11. Cheese Grater	11. Demonstrate proper SAFETY Practices

DESCRIPTION OF PERFORMANCE	POINTS	GRADE
Performance has been at the <u>highest level</u> , showing sustained excellence in meeting all course requirements & exhibiting an unusual degree of intellectual initiative.	90-100	A
Performance has been at a <u>high level</u> , showing consistent and effective achievement in meeting task requirements.	80-89	B
Performance has been at an <u>adequate level</u> , meeting the basic requirements of the task.	70-79	C
Performance has been <u>less than adequate</u> , meeting only the minimum task requirements.	60-69	D
Performance has been such that <u>minimal task requirements have not been met</u> .	0-59	F

LAB SHEET 1-A1 -- AB 51 – Non-Structural Damage Repair

PERFORMANCE RATING SHEET

Student Name: _____ **Date:** ____/____/____

Start Time: ____:____ **End Time:** ____:____ **TOTAL TIME:** _____ min. **STANDARD: 60 min.**

Rated by: _____ **SCORE:** _____ **GRADE:** _____

PROCEDURE: METAL STRAIGHTENING AND USE OF BODY FILLER

	TASKS BEING EVALUATED	✓ = PASS	POINTS POSSIBLE	SCORE
1	Gather all tools and materials needed to provide the proper repair.		5	
2	Rough-out the damaged area, bringing the panel roughly into original shape and dimension. Use roughing hammer, prying tools, spoons, dolly etc.		5	
3	Pick-up the low spots in the sheet metal using a pick hammer, spoon, pry bar etc.		5	
4	Take care not to stretch the metal beyond its normal elasticity.		5	
5	Feel the damaged area with the flat palm and fingers of the hand noticing any excessive high or low spots, correcting them as you evaluate the condition of the panel.		5	
6	Using a 9" air grinder with a 24 grit open-coat grinding disk, remove the paint from the repair area and provide clean, rough texture for the body filler to adhere to.		5	
7	Mix an appropriate amount of body filler with the provided hardener.		5	
8	Homogenize the filler to be of one smooth color and consistency, no lumps, debris or streaks of dark or light colors.		5	
9	Using a putty knife or spreader, apply the filler over the repair area, using a "squeegee" type of motion in order to remove any air bubbles and to provide for improved adhesion to the bare metal. Provide an excess amount of filler in order to eliminate any low spots when sanding.		5	
10	Once the filler is cured, use sanding block (or power sander) with a coarse abrasive (36 to 40 grit), cut down the finish to original contour and shape.		5	
11	Upon proper rough block sanding providing contour and shape, use a similar procedure as in step 10, but now switch to a finer grit sandpaper. (80 to 100 grit).		7	
12	When the finish is block sanded to 80 to 100 grit, and it has the appropriate shape and contour, use a DA orbital sander with 80 to 100 grit and featheredge the broken edge of paint, blending it to an undetectable edge with the bare metal surrounding the sanded body filler.		8	
13	Clean all repair residue from the vehicle or panel and provide a final inspection of the repair area, noting any excessive sand scratches or pinholes and confirm that the repair area now conforms to pre-accident shape and contour.		15	
14	Demonstrate appropriate SAFETY PRACTICES throughout		20	
TOTAL			100	

Any items not marked ✓ must be repeated until a PASS condition is reached