

Motor Vehicle Body Repairers (Metal and Paint)

NOC 7322

Introduction

Motor vehicle body repairers (metal and paint) repair and restore damaged motor vehicle bodies as well as their collision-damaged mechanical and structural parts. Most motor vehicle body repairers work in private enterprises or are self-employed. Journeypersons may be employed by body shops, auto and truck dealerships, custom shops, and trucking and bus companies.

The most important Essential Skills for Motor Vehicle Body Repairers (Metal and Paint) are:

- Numeracy
- Critical Thinking
- Job task planning and organizing

Document Sections

- Reading Text
- Document Use
- Writing
- Numeracy
- Oral Communication
- Thinking Skills
 - Problem Solving
 - Decision Making
 - Critical Thinking
 - Job Task Planning and Organizing
 - Significant Use of Memory
 - Finding Information
- Working with Others
- Computer Use
- Continuous Learning
- Notes

A. Reading Text

Reading Text

Tasks	Complexity Level	Examples
Typical	1 to 3	<p>Motor Vehicle Body Repairers (Metal and Paint)</p> <ul style="list-style-type: none"> • read instructions on labels. For example, they read directions for handling and mixing products such as resins and hardeners to make body fillers. (1) • read brief text entries and notes on estimates, work orders and other forms. They read details of customers' requests and notes describing previous damage and defects such as malfunctioning hood, door and trunk locks. (2) , (daily) • read memos. For example, they may read memos on topics such as changes to work schedules, upcoming training events and procedures to be followed when painting and detailing vehicles. (2) • read bulletins from paint and vehicle manufacturers and Workers' Compensation Boards. For example, they may read automobile manufacturers' bulletins outlining procedures for removing airbags. They may read Workers' Compensation Board bulletins which specify the personal protective equipment needed for work with flammable products and materials. (2)
Most Complex	3	<ul style="list-style-type: none"> • read a variety of manuals. For example, they read vehicle manufacturers' service and repair manuals to understand repair procedures. They read users' manuals to understand operating procedures for equipment such as frame straighteners and various hydraulic, pneumatic and electric power tools. (3) • may read trade magazines such as AutoShop, Collision Quarterly and Canadian Technician for current information on new repair techniques and equipment and industry trends. (3)

Reading Summary

The symbol √ is explained in the Use of Symbols section.

Type of Text	Purpose for Reading			
	To scan for specific information/To locate information	To skim for overall meaning, to get the 'gist'	To read the full text to understand or to learn	To read the full text to critique or to evaluate
Forms	√		√	
Labels	√		√	
Notes, Letters, Memos	√	√	√	
Manuals, Specifications, Regulations	√	√	√	
Reports, Books, Journals		√	√	

B. Document Use

Document Use

Tasks	Complexity Level	Examples
Typical	1 to 3	<p>Motor Vehicle Body Repairers (Metal and Paint)</p> <ul style="list-style-type: none"> observe warning signs and symbols. For example, they identify Workplace Hazardous Materials Information System hazard symbols on product labels. They identify symbols for personal protective equipment on workplace signs. They observe signs which identify the locations of eyewash and first aid stations. (1) , (daily) scan labels to locate information about parts and products. For example, they select appropriate replacement parts by locating product identification numbers, sizes and colours on part labels. They identify keys for vehicles by locating licence plate numbers, makes, models and years of manufacture on key tags. (1) , (daily)

B. Document Use

Document Use

Most Complex	3	<ul style="list-style-type: none">• enter data on forms. For example, they record times spent repairing vehicles on time cards. They complete identification tags for parts removed from vehicles and record parts not yet received on work orders. (1) , (daily)• locate data in work orders, estimates and other forms. For example, they scan estimates to locate vehicles' identification numbers, contact information for customers, time allocated for repairs and parts on order. (2) , (daily)• study technical drawings to locate dimensions and identify shapes, positions and orientations of vehicle parts and assemblies. For example, they use assembly diagrams to ensure they properly assemble and disassemble components for suspension, steering and braking systems. (2)• locate data in lists and tables. For example, they scan part lists to identify part numbers, descriptions and prices of hand-held tools. They scan manufacturers' specification tables to identify dimensions of doors, hatches and trunks and seat belt restraint systems. They scan work schedules to identify vehicles currently under repair, technicians assigned to vehicles and completion due dates. (3)• identify devices and circuits in electrical schematics. For example, they identify connectors, switches, fuses and wire colours when repairing and installing wiring harnesses. (3)• locate and interpret data in graphs and flowcharts. For example, they interpret data on graphs produced by computerized wheel alignment equipment. They locate information on flowcharts displaying how supplementary restraint systems operate when activated. (3)
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Examples

- may make sketches. For example, they may sketch the placement and positioning of manufacturers' decals. They may sketch locations of wires for non-standard electrical equipment such as power door locks and remote car starters.

Document Use Summary

- Read signs, labels or lists.
- Complete forms by marking check boxes, recording numerical information or entering words, phrases, sentences or text of a paragraph or more. The list of specific tasks varies depending on what was reported.
- Read completed forms containing check boxes, numerical entries, phrases, addresses, sentences or text of a paragraph or more. The list of specific tasks varies depending on what was reported.
- Read tables, schedules or other table-like text (e.g., read work shift schedules).
- Enter information on tables, schedules or other table-like text.
- Obtain specific information from graphs or charts.
- Interpret information on graphs or charts.
- Recognize common angles such as 15, 30, 45 and 90 degrees.
- Draw, sketch or form common shapes such as circles, triangles, spheres, rectangles, squares, etc.
- Read assembly drawings (e.g. those found in service and parts manuals).
- Read schematic drawings (e.g. electrical schematics).
- Make sketches.
- Obtain information from sketches, pictures or icons (e.g., computer toolbars).

C. Writing

Writing

Tasks	Complexity Level	Examples
Typical	1 to 2	Motor Vehicle Body Repairers (Metal and Paint) <ul style="list-style-type: none">• write reminders and notes for co-workers. For example, they write reminders for tasks which need to be carried out on specific vehicles. They write notes for co-workers reminding them of hidden areas that need to be painted. (1)
Most Complex	2	<ul style="list-style-type: none">• write notes on estimate and inspection forms to provide explanations for extra repair time. (2) , (daily)

Writing Summary

The symbol √ is explained in the Use of Symbols section.

	Purpose for Writing						
Length	To organize/ to remember	To keep a record/to document	To inform/ to request information	To persuade/ to justify a request	To present an analysis or comparison	To present an evaluation or critique	To entertain
Text requiring less than one paragraph of new text	√	√	√				
Text rarely requiring more than one paragraph			√				
Longer text							

D. Numeracy

The symbol $\sqrt{\quad}$ is explained in the Use of Symbols section.

Numeracy

Tasks	Complexity Level	Examples
$\sqrt{\quad}$ Money Math	3	Motor Vehicle Body Repairers (Metal and Paint) <ul style="list-style-type: none"> • may verify totals and tax calculations prior to approving payment of suppliers' invoices. (Money Math), (3)
$\sqrt{\quad}$ Measurement and Calculation Math	1	<ul style="list-style-type: none"> • measure and record times taken to complete a variety of repairs. For example, they record the number of hours spent on each vehicle and total their billable hours on a daily basis. (Measurement and Calculation Math), (1) , (daily) • take measurements using instruments such as tram bars, rulers, tapes, and laser and sonic measuring tools. For example, they measure the heights, widths and lengths of vehicles when straightening frames. They measure the diameters of dents in side panels and lengths of trim. (Measurement and Calculation Math), (1) , (daily)
$\sqrt{\quad}$ Data Analysis Math	1	<ul style="list-style-type: none"> • compare actual repair times to allotted times on work orders and estimates. (Data Analysis Math), (1) , (daily) • analyze measurements and compare them to manufacturers' specifications. For example, they compare before and after measurements when adjusting vehicle frames and door openings. They compare distances, tire pressures and voltages to new vehicle specifications. (Data Analysis Math), (1) , (daily) • estimate quantities of materials. For example, they consider sizes of dents and ambient temperatures when determining quantities of fillers and hardeners to mix. (Numerical Estimation), (2) , (daily) • estimate times needed to complete repairs. For example, they estimate times required to disassemble and reassemble vehicle components. (Numerical Estimation), (2)
$\sqrt{\quad}$ Numerical Estimation	2	

Math Skills Summary

a. Mathematical Foundations Used

The symbol \checkmark is explained in the Use of Symbols section.

Mathematical Foundations Used

Code	Tasks	Examples
Number Concepts		
\checkmark	Whole Numbers	Read and write, count, round off, add or subtract, multiply or divide whole numbers. For example, reading vehicle identification numbers; counting parts received; totalling billable hours.
\checkmark	Rational Numbers - Fractions	Read and write, add or subtract fractions, multiply or divide by a fraction, multiply or divide fractions. For example, adding and subtracting dimensions in fractions of inches
\checkmark	Rational Numbers - Decimals	Read and write, round off, add or subtract decimals, multiply or divide by a decimal, multiply or divide decimals. For example, reading flat rate times; calculating times assigned for repairs; rounding off decimals when determining tolerances.
Patterns and Relations		
\checkmark	Use of Rate, Ratio and Proportion	Use a rate showing comparison between two quantities with different units. Use a proportion showing comparison between two ratios or rates in order to solve problems. For example, reading pressure gauges as pounds per square inch; calculating billable hours using established rates per hour; calculating amounts of resins and hardeners when mixing body fillers.
Shape and Spatial Sense		
\checkmark	Geometry	Use geometry. For example, determining parallelism of rails and beams and alignment of panels. Recognizing common angles. Drawing, sketching and forming common forms and figures. Using tables, schedules or other table-like text.

b. How Calculations are Performed

- In their heads.
- Using a pen and paper.
- Using a calculator.
- Using a computer.

c. Measurement Instruments Used

- Time. For example, using watches and clocks.
- Distance or dimension. For example, using tape measures, tram gauges and lasers.
- Liquid volume. For example, using calibrated measuring sticks.
- Temperature. For example, using heat crayons.
- Pressure. For example, using pressure gauges.
- Use the SI (metric) measurement system.
- Using the imperial measurement system.

E. Oral Communication

Oral Communication

Tasks	Complexity Level	Examples
Typical	1 to 2	<p>Motor Vehicle Body Repairers (Metal and Paint)</p> <ul style="list-style-type: none"> • discuss parts and supplies with partspersons and suppliers. For example, they speak with partspersons to request parts and to check the status of deliveries. They order hardeners and fillers from suppliers and ask questions about new equipment and products. (1) , (daily) • discuss scheduling, work co-ordination and shop operations with co-workers and managers. For example, they discuss workflow, production problems and safety concerns at staff meetings. They request clarifications and inform their managers about damage not identified in estimates and vehicles requiring more repair time than allocated. (2) , (daily)
Most Complex	2	<ul style="list-style-type: none"> • ask other motor vehicle body repairers for technical assistance. For example, they may seek advice when carrying out tasks such as troubleshooting equipment malfunctions, installing airbag sensors and restoring vehicles' corrosion protection coverings. (2) , (daily) • may discuss repairs with customers. They explain repair processes, show them hidden damage not listed on estimates and respond to customers' questions and complaints. (3)

Modes of Communication Used

- In person.
- Using a telephone.

Environmental Factors Affecting Communication

Shop noise caused by hammering, air compression tools and ventilation systems may impede workers' abilities to communicate with each other.

Oral Communication Summary

The symbol √ is explained in the Use of Symbols section.

Purpose for Oral Communication (Part I)						
Type	To greet	To take messages	To provide /receive information, explanation, direction	To seek, obtain information	To co-ordinate work with that of others	To reassure, comfort
Listening (little or no interaction)						
Speaking (little or no interaction)						
Interact with co-workers			√	√		
Interact with those you supervise or direct						
Interact with supervisor/ manager			√	√	√	
Interact with peers and colleagues from other organization						
Interact with customers/ clients/ public			√			
Interact with suppliers, servicers			√	√		
Participate in group discussion			√	√		
Present information to a small group						
Present information to a large group						

The symbol √ is explained in the Use of Symbols section.

Purpose for Oral Communication (Part II)						
Type	To discuss (exchange information, opinions)	To persuade	To facilitate, animate	To instruct, instill understanding, knowledge	To negotiate, resolve conflict	To entertain
Listening (little or no interaction)						
Speaking (little or no interaction)						
Interact with co-workers	√					
Interact with those you supervise or direct						
Interact with supervisor/ manager	√					
Interact with peers and colleagues from other organization				√		
Interact with customers/ clients/ public	√					
Interact with suppliers, servicers	√					
Participate in group discussion	√					
Present information to a small group						
Present information to a large group						

F. Thinking Skills

1. Problem Solving

Problem Solving

Tasks	Complexity Level	Examples
Typical	1 to 2	Motor Vehicle Body Repairers (Metal and Paint) <ul style="list-style-type: none"> are unable to complete repairs. For example, they find parts are unavailable and equipment and hand tools are not working properly. They ask partspersons to source parts and rush delivery. They inform their supervisors of equipment malfunctions and borrow tools from co-workers. (1)
Most Complex	2	<ul style="list-style-type: none"> encounter products such as fillers and adhesives that are not performing as specified. For example, when body fillers are hardening too slowly or quickly, they mix new batches and vary amounts of resins and hardeners. They open new cans of adhesives when bonds are not holding. They contact suppliers to determine if particular brands and batches are defective. (1) are unable to complete repairs within specified times due to hidden damage. They itemize all unforeseen repairs, take photographs to illustrate the damage and present revised estimates to their supervisors. (2)

2. Decision Making

Decision Making

Tasks	Complexity Level	Examples
Typical	2 to 3	Motor Vehicle Body Repairers (Metal and Paint) <ul style="list-style-type: none"> choose repair procedures and tools. For example, they decide whether to approach repairs of body panels from the inside or outside. They consider the locations and sizes of damaged sections. They choose repair processes suitable for various types of materials, damage locations and manufacturers' specifications. (2) , (daily)
Most Complex	3	<ul style="list-style-type: none"> decide to repair and replace defective and worn parts. They base their decisions on extent of damage, work order estimates and times required to bring damaged parts up to manufacturers' specifications. (3)

3. Critical Thinking

Critical Thinking

Tasks	Complexity Level	Examples
Typical	2 to 3	Motor Vehicle Body Repairers (Metal and Paint)
Most Complex	3	<ul style="list-style-type: none"> judge the quality of repairs. They inspect structural and non-structural repairs and functionality of electrical components. They review manufacturers' safety and quality control standards. They also consider the shapes, lengths and depths of bodylines, the fit of doors and other adjacent parts and the degree to which repairs match surrounding body components. (2) judge the severity of damage prior to beginning repairs. They review notes on work estimates, look for hidden damage when dismantling vehicles and use their prior knowledge of secondary damage associated with similar accidents and vehicles. (3)

4. Job Task Planning and Organizing

Job Task Planning and Organizing

Complexity Level	Description
2	<p>Own job planning and organizing</p> <ul style="list-style-type: none"> Motor vehicle body repairers are assigned job tasks, with allocated timelines, by their supervisors. At any one time, they may be working on several vehicles at different stages in the repair process. This requires them to organize and order their job tasks to ensure efficient use of both time and equipment. They may have to adjust their task priorities if parts are not available. They co-ordinate their work with that of painters and detailers to meet set timelines. <p>Planning and organizing for others</p> <ul style="list-style-type: none"> Motor Vehicle Body Repairers may plan tasks and duties for apprentices.

5. Significant Use of Memory

Examples

- remember identification numbers for commonly used parts such as light bulbs, electrical harnesses, ball joints and air bags.
- remember properties and drying times for bonding agents and epoxies.

6. Finding Information

Finding Information

Tasks	Complexity Level	Examples
Typical	2	Motor Vehicle Body Repairers (Metal and Paint) <ul style="list-style-type: none"> find information necessary to complete repairs by asking co-workers and colleagues, reading manufacturers' service and repair manuals and searching on-line databases. (2) , (daily)
More Complex	2	

G. Working with Others

Working with Others

Complexity Level	Description
2	Motor vehicle body repairers work independently when repairing vehicles. They seek the help of co-workers when moving vehicles and lifting large and heavy parts into place. They coordinate job tasks with in-house estimators, painters and detailers to ensure efficiency of work processes when restoring damaged vehicles.

Participation in Supervisory or Leadership Activities

- Participate in formal discussions about work processes or product improvement.
- Have opportunities to make suggestions on improving work processes.
- Inform other workers or demonstrate to them how tasks are performed.
- Assign routine tasks to other workers.

H. Computer Use

Computer Use

Tasks	Complexity Level	Examples
Typical	2	Motor Vehicle Body Repairers (Metal and Paint) <ul style="list-style-type: none"> use database software. For example, they may access manufacturers' service and repair databases to verify component specifications and to access schematic drawings and repair procedures (2)
Most Complex	2	

Computer Use Summary

- Use a database.

I. Continuous Learning

Continuous Learning

Complexity Level	Description
2	Continuous learning is integral to the work of motor vehicle body repairers. They learn through their daily work and interactions with co-workers and by reading trade magazines. They use manufacturers' manuals and databases to increase their knowledge of specific vehicle repair procedures. They attend classroom training provided by the Inter-Industry Conference on Auto Collision Repair, their industry association, and on-site training for new equipment and products provided by vendors. Employers provide health and safety training.

How Learning Occurs

Learning may be acquired:

- As part of regular work activity.
- From co-workers.
- Through training offered in the workplace.
- Through reading or other forms of self-study
 - at work.
 - on worker's own time.
 - using materials available through work.
 - using materials obtained through a professional association or union.
- Through off-site training
 - during working hours at no cost to the worker.
 - partially subsidized.

J. Other Information

In addition to collecting information for this Essential Skills Profile, our interviews with job incumbents also asked about the following topics.

Physical Aspects

Motor vehicle body repairers stand and walk about their shops, bend over and lie beneath vehicles, sit when sanding and reach for tools, parts and products. They require heavy strength to lift vehicle components such as doors, hoods and bumpers. They require hand-eye coordination to cut and weld sections of frame rails and upper and multiple limb co-ordination to hold panels in place and move vehicle components. They use their senses of touch and sight to confirm repaired areas are smooth and blend with adjacent areas.

Attitudes

Motor vehicle body repairers should enjoy working independently and be attentive to details.

Future Trends Affecting Essential Skills

Computer use and continuous learning will increase in importance in this occupation. Motor vehicle body repairers will be required to learn how to operate more computerized equipment as it is introduced to the industry. The use of new composites in the construction of vehicles and the specialized requirements of hybrid vehicles will require further learning to understand the procedures and specifications for completing repairs.

K. Notes

This profile is based on interviews with job incumbents across Canada and validated through consultation with industry experts across the country.

For information on research, definitions, and scaling processes of Essential Skills Profiles, please consult the Readers' Guide to Essential Skills Profiles (<http://www.hrsdc.gc.ca/eng/jobs/les/profiles/readersguide.shtml>).