Auto Body and Collision Technician

Guide to Course Content

2024

1-877-363-0536
apprenticeship@gov.sk.ca
saskapprenticeship.ca

Saskatchewan Apprenticeship and Trade Certification Commission

Online: www.saskapprenticeship.ca

Recognition:
To promote transparency and consistency, this document has been adapted from the 2018 Auto Body and Collision Technician Red Seal Occupational Standard (Employment and Social Development Canada).

The Auto Body and Collision Technician Red Seal Occupational Standard (RSOS), describing the "full scope" of the trade, can be found at www.red-seal.ca.

STRUCTURE OF THE GUIDE TO COURSE CONTENT

To facilitate understanding of the occupation, this guide to course content contains the following sections:

Description of the Auto Body and Collision Technician trade: an overview of the trade's duties and training requirements.

Essential Skills Summary: an overview of how each of the nine essential skills is applied in this trade.

Elements of harmonization of apprenticeship training: includes adoption of Red Seal trade name, number of levels of apprenticeship, total training hours (on-the-job and in-school) and consistent sequencing of technical training content. Implementation for harmonization will take place progressively. Level one to be implemented in 2020/2021, level two in 2021/2022, level three in 2022/2023, and level four in 2023/2024.

Task Matrix: a chart which outlines graphically the major work activities, tasks and sub-tasks of this standard detailing the essential skills and the level of training where the content is covered.

Major Work Activity (MWA): the largest division within the standard that is comprised of a distinct set of trade activities.

Task: distinct actions that describe the activities within a major work activity.

Sub-task: distinct actions that describe the activities within a task.

Training Profile Chart: a chart which outlines the model for Saskatchewan Apprenticeship and Trade Certification Commission (SATCC) technical training.

Technical Training Course Content for the Auto Body and Collision Technician trade: a chart which outlines the model for SATCC technical training sequencing. For the harmonized level of training, a cross reference to the Harmonized apprenticeship technical training sequencing, at the learning outcome level, is provided.

Appendix A: Post Harmonization Training Profile Chart: a chart which outlines the finalized model for SATCC technical training sequencing with a cross reference to the Harmonized apprenticeship technical training sequencing, at the topic level.

DESCRIPTION OF THE AUTO BODY AND COLLISION TECHNICIAN TRADE

Auto Body and Collision Technicians perform the appraising, servicing, repairing, replacing, refinishing and restoring of damaged bodies and frames of motor vehicles.

Auto body and collision technicians repair and restore damaged motor vehicles. They assess body damage and develop repair estimates and repair plans. Their repair work may range from correcting minor structural damage and cosmetic scratches and dents to fixing extensive structural damage to motor vehicles. Some parts may need to be removed for access or during repairs. Vehicle parts that are damaged beyond repair are replaced. The alignment and replacement of suspension and steering components is also performed in this trade. Restoring interior components of vehicles falls within the scope of the trade. Auto body and collision technicians may work with mechanical and electronic components such as air conditioning (A/C) systems, exhaust systems, drivetrain, engine cooling systems, advanced electronic components (adaptive cruise control and lane departure features), and passenger restraint systems (seat belts and air bags).

In this sector, most auto body and collision technicians work in private enterprises or are self-employed. They may be employed by body repair facilities, auto and truck dealerships, custom repair facilities, and trucking and bus companies. In larger repair facilities or dealerships, there may be a division of responsibilities among the team of repair professionals. Some may work exclusively on collision specialization such as damage repair, frame straightening, refinishing, suspension, detailing, or auto glass installation. Generally, in smaller repair facilities, auto body and collision technicians tend to be responsible for a wider range of these duties. While they may work as part of the repair team, which includes other auto body and collision technicians, automotive refinishing technicians, automotive service technicians, and others in the automotive sector, journeypersons tend to carry out their duties alone.

Auto body and collision technicians require proficiency with a variety of tools and equipment, some of which are technologically advanced. Diagnostic scanning equipment is used for diagnosis and programming electronic and electrical systems. Hand and power tools are used in the repair and replacement of motor vehicle parts. Welding and cutting equipment is also used. Auto body and collision technicians work with a number of materials such as metal, glass, plastic and composites. Surface repairs may require the application of repair materials. In addition, they may prepare surfaces for refinishing and apply a variety of appropriate refinishing products. They have refinishing application and detailing skills.

Working environments vary in this trade. Typically, auto body and collision technicians work indoors in an environment that may be noisy and dusty. However, many repair facilities are well ventilated to reduce health risks from dust and fumes. Health and safety are important issues as these workers are frequently in contact with chemicals (e.g. paints, solvents and fillers) and physical hazards (e.g. lifting heavy objects, frame equipment and sharp metal). Ongoing safety training and safe work practices are important.

Key attributes for people entering this trade are good communication skills, mechanical aptitude, problem solving skills, an eye for detail, computer literacy and a commitment to ongoing training. The work often requires considerable standing, kneeling, lifting, climbing, pulling and reaching.

With experience, auto body and collision technicians may move into supervisory positions, start their own business, or become auto damage appraisers. Some of the skills of this trade may be transferred to other occupations such as sheet metal worker, industrial painter, welder, automotive painter, glazier or automotive service technician and to other sectors such as manufacturing, aviation and marine.

Training Requirements: To graduate from each level of the apprenticeship program, an apprentice must successfully complete the required technical training and compile enough on-the-job experience to total at least 1800 hours each year. Total trade time required is 7200 hours and at least 4 years in the trade.

There are four levels of technical training delivered by Saskatchewan Polytechnic in Saskatoon and Regina.

Level One: 6 weeks
Level Two: 6 weeks
Level Three: 7 weeks
Level Four: 7 weeks

The information contained in this pamphlet serves as a guide for employers and apprentices. The pamphlet briefly summarizes the training delivered at each level of apprenticeship training. An apprentice spends approximately 15% of the apprenticeship term in a technical training institute learning the technical and theoretical aspects of the trade. The hours and percentages of technical and practical training may vary according to class needs and progress.

The content of the technical training components is subject to change without notice.

Entrance Requirements for Apprenticeship Training

Your grade twelve transcripts (with no modified classes) or GED 12 is your guarantee that you meet the educational entrance requirements for apprenticeship in Saskatchewan. In fact, employers prefer and recommend apprentices who have completed high school. This ensures the individual has all of the necessary skills required to successfully complete the apprenticeship program, and receive journeyperson certification.

Individuals with “modified” or “general” classes in math or science do not meet our entry requirements. These individuals are required to take an entrance assessment prescribed by the SATCC.

English is the language of instruction in all apprenticeship programs and is the common language for business in Saskatchewan. Before admission, all apprentices and/or “upgraders” must be able to understand and communicate in the English language. Applicants whose first language is not English must have a minimum Canadian Language Benchmark Assessment of six (CLB6).

Note: A CLB assessment is valid for a one-year period from date of issue.

Designated Trade Name	**Math Credit** at the Indicated Grade Level❶	**Science Credit** at Grade Level
Auto Body and Collision Technician	Grade 10	Grade 10

❶ - (One of the following) WA – Workplace and Apprenticeship; or F – Foundations; or P – Pre-calculus, or a Math at the indicated grade level (Modified and General Math credits are not acceptable.).

*Applicants who have graduated in advance of 2015-2016, or who do not have access to the revised Science curricula will require a Science at the minimum grade level indicated by trade.

For information about high school curriculum, including Math and Science course names, please see: http://www.curriculum.gov.sk.ca/

Individuals not meeting the entrance requirements will be subject to an assessment and any required training.

ESSENTIAL SKILLS SUMMARY

Essential skills are needed for work, learning and life. They provide the foundation for learning all other skills and enable people to evolve with their jobs and adapt to workplace change.

Through extensive research, the Government of Canada and other national and international agencies have identified and validated nine essential skills. These skills are used in nearly every occupation and throughout daily life in different ways.

A series of CCDA-endorsed tools have been developed to support apprentices in their training and to be better prepared for a career in the trades. The tools can be used independently or with the assistance of a tradesperson, trainer, employer, teacher or mentor to:

- understand how essential skills are used in the trades;
- learn about individual essential skills strengths and areas for improvement; and
- improve essential skills and increase success in an apprenticeship program.

Tools are available online or for order at: https://www.canada.ca/en/employment-social-development/programs/essential-skills/tools.html.

The application of these skills may be described throughout this document within the competency statements which support each subtask of the trade. The following are summaries of the requirements in each of the essential skills, taken from the essential skills profile. A link to the complete essential skills profile can be found at: www.red-seal.ca.

READING

Auto body and collision technicians read labels, technical service bulletins and manuals to learn about installation and repair procedures. They read estimates, work orders and memos about damages and details of customers' requests. Auto body and collision technicians read safety-related information and a variety of Acts, bylaws and regulations. They also read trade publications to learn about new technologies, products and materials.

DOCUMENT USE

Auto body and collision technicians observe hazard symbols on product labels. They locate and interpret data on forms, works orders and documents to identify product identification numbers, parts and colours. Auto body and collision technicians read documents to determine product specifications such as dimensions of doors, hatches and seat belt restraint systems. They also identify devices and circuits in schematics and technical drawings to identify connectors, switches, and the position and orientation of vehicle parts and assemblies.

WRITING

Auto body and collision technicians write notes and supplements on work orders and forms to describe what work was performed. They may write reports describing workplace incidents.

ORAL COMMUNICATION

Auto body and collision technicians communicate with co-workers, vendors and customers about the scope of work and work completed. They may explain procedures to apprentices. Auto body and collision technicians may exchange technical information with co-workers and technicians when seeking advice on procedures for carrying out tasks.

NUMERACY

Auto body and collision technicians take a variety of measurements, and analyze and compare them to manufacturers' specifications. They may estimate times and materials for projects.

THINKING

Auto body and collision technicians use problem solving skills to determine severity of damage prior to beginning repairs and to identify hidden damages when dismantling vehicles. They judge the quality of repairs by considering shape, length, depths of bodylines, fit of doors and parts. Auto body and collision technicians decide order and priority of tasks taking into consideration availability of equipment and priority of unfinished work.

DIGITAL TECHNOLOGY

Auto body and collision technicians may use mobile devices to complete numeracy-related tasks. They may use digital cameras to visually inspect hard to access vehicle components for damages. They use diagnostic equipment. Auto body and collision technicians may use specialized auto body service databases to access job assignments, retrieve and review past service information, and complete estimates and work orders. They may use the internet to access OEM specifications and procedures and training courses or forums to provide advice and learn how to complete repairs.

WORKING WITH OTHERS

Auto body and collision technicians spend most of their time working independently but they may be required to coordinate activities with workers from other departments to ensure vehicle availability when repairing damaged vehicles. They may also work directly with co-workers when moving vehicles and lifting large and heavy parts into place.

CONTINUOUS LEARNING

Auto body and collision technicians are continuously learning to keep up with the changes in the industry. They attend on-site, on-line or classroom training provided by industry associations or manufacturers and suppliers.

ELEMENTS OF HARMONIZATION FOR APPRENTICESHIP TRAINING

At the request of industry, the Harmonization Initiative was launched in 2013 to *substantively align* apprenticeship systems across Canada by making training requirements more consistent in the Red Seal trades. Harmonization aims to improve the mobility of apprentices, support an increase in their completion rates and enable employers to access a larger pool of apprentices.

As part of this work, the Canadian Council of the Directors of Apprenticeship (CCDA) identified four main harmonization priorities in consultation with industry and training stakeholders:

1. Trade name

The official Red Seal name for this trade is Auto Body and Collision Technician.

2. Number of Levels of Apprenticeship

The number of levels of technical training recommended for the Auto Body and Collision Technician trade is four.

3. Total Training Hours during Apprenticeship Training

The total hours of training, including both on-the-job and in-school training for the Auto Body and Collision Technician trade is 7200.

4. Consistent sequencing of training content (at each level) using the most recent Occupational Standard

Implementation for harmonization took place progressively. Level one was implemented in 2020/2021, level two in 2021/2022, level three in 2022/2023, and level four in 2023/2024. See Appendix A for the finalized curriculum comparisons.

White boxes are “Topics,” grey boxes are “In Context”. In context means learning that has already taken place and is being applied to the applicable task. Learning outcomes for in context topics are accomplished in other topics in that level.

Level 1 (2020/2021 implementation)	Level 2 (2021/2022 implementation)	Level 3 (2022/2023 implementation)	Level 4 (2023/2024 implementation)
	Safety-Related Functions	Safety-Related Functions	Safety-Related Functions
	Communication	Communication	
		Refinishing Materials (Prepares)	Refinishing Materials (Prepares)

Level 1 (2020/2021 implementation)	Level 2 (2021/2022 implementation)	Level 3 (2022/2023 implementation)	Level 4 (2023/2024 implementation)
		Structural and Laminated Glass (Removes, installs and Repairs)	
		Non-Structural Glass (Removes and Installs)	
Safety-Related Functions			
Tools and Equipment	Tools and Equipment	Tools and Equipment	Tools and Equipment
Welding Equipment (Basic/Introduction)	Welding Equipment	Welding Equipment	Welding Equipment
Work Organization and Document Use	Work Organization and Document Use	Work Organization and Document Use	Work Organization and Document Use
Communication			Mentoring
Trim and Hardware			
		Final Inspections	Final Inspections
	Corrosion Protection and Sound Deadening Materials		
		Structural Components (Prepares)	Structural Components (Prepares)
		Structural Components (Removes, Repairs and Installs)	Structural Components (Removes, Repairs and Installs)
	Structural and Laminated Glass (Removes, Installs and Repairs)		
Metal Panels and Components (Removes, Repairs and Installs)	Metal Panels and Components (Removes, Repairs and Installs)		
Plastic and Composite Panels and Components (Removes, repairs and Installs)	Plastic and Composite Panels and Components (Removes, repairs and Installs)		

Level 1 (2020/2021 implementation)	Level 2 (2021/2022 implementation)	Level 3 (2022/2023 implementation)	Level 4 (2023/2024 implementation)
	Non-Structural Glass (Removes and Installs)		
		Alternate Fuel Systems (Deactivates and Reactivates)	
		Mechanical Components (Removes and Installs)	Mechanical Components (Removes and Installs)
		Electrical and Electronic Components (Removes, Repairs and Installs)	Electrical and Electronic Components (Removes, Repairs and Installs)
	Interior Components (Repairs and Replaces)		
		Supplemental Restraint Systems (SRS)	
Surface Preparation			
Repair Materials			
Refinishing Equipment Preparation	Refinishing Equipment Preparation		
Refinishing Materials (Prepares)	Refinishing Materials (Prepares)		
Refinishing Materials (Applies)	Refinishing Materials (Applies)		
Post-Refinishing Functions	Post-Refinishing Functions		
Exterior Detailing			
Cleans Vehicle			

AUTO BODY AND COLLISION TECHNICIAN
TASK MATRIX

This chart outlines the major work activities, tasks and sub-tasks from the 2018 Auto Body and Collision Technician Red Seal Occupational Standard. Each sub-task details the corresponding essential skill and level of training where the content is covered. *

* Sub Tasks with numbers in the boxes is where the content will be delivered in training. The Task Matrix Chart will be updated every year until Harmonization implementation is complete. Implementation for harmonization took place progressively. Level one was implemented in 2020/2021, level two in 2021/2022, level three in 2022/2023, and level four in 2023/2024.

A – Performs common occupational skills — 12%

Task A-1 Performs safety-related functions	**1.01 Maintains safe work environment** **1 (2, 3, 4 in context)**	**1.02 Uses personal protective equipment (PPE) and safety equipment** **1 (2, 3, 4 in context)**			
Task A-2 Uses and maintains tools and equipment	**2.01 Maintains hand and power tools** **1**	**2.02 Maintains frame and unibody repair and measuring equipment** **3, 4**	**2.03 Uses lifting equipment** **1, 2**	**2.04 Uses diagnostic equipment** **3, 4**	**2.05 Maintains refinishing tools and equipment** **1, 2**
Task A-3 Uses and Maintains welding equipment	**3.01 Uses welding equipment** **1, 2, 3, 4**	**3.02 Maintains welding equipment** **1, 2, 3, 4**			
Task A-4 Organizes work and uses documentation	**4.01 Prepares estimates and supplements** **3, 4**	**4.02 Prepares repair plan** **2**	**4.03 Organizes parts, materials and work area** **1, 2**	**4.04 Uses documentation** **1, 2, 3, 4**	

Task A-5 Uses communication and mentoring techniques	**5.01 Uses communication techniques** **1** **(2, 3 in context)**	**5.02 Uses mentoring techniques** **4**
Task A-6 Removes and installs trim and hardware	**6.01 Removes trim and hardware** **1**	**6.02 Installs trim and hardware** **1**
Task A-7 Performs final inspections	**7.01 Performs final operational check** **3**	**7.02 Performs final quality control inspection** **4**
Task A-8 Applies corrosion protection and sound deadening materials	**8.01 Applies corrosion inhibitors and undercoats** **2**	**8.02 Applies seam sealers and sound deadeners** **2**

B – Repairs frame and structural components

23%

Task B-9 Prepares for repair and replacement of structural components	9.01 Identifies extent of damage 3, 4	9.02 Removes components for access 3, 4	9.03 Performs vehicle setup 3, 4
Task B-10 Repairs, removes and installs structural components	10.01 Repairs structural components 3, 4	10.02 Removes structural components 3, 4	10.03 Installs structural components 3, 4
Task B-11 Removes, installs and repairs structural and laminated glass	11.01 Removes structural glass 2 (3 in context)	11.02 Installs structural glass 2 (3 in context)	11.03 Repairs laminated glass 2 (3 in context)

C – Repairs non-structural outer body panels and related components

20%

Task C-12 Removes, repairs and installs metal panels and components	12.01 Prepares metal panels and components for repair 1	12.02 Removes metal panels and components 1	12.03 Repairs metal panels and components 2	12.04 Installs metal panels and components 1
Task C-13 Removes, repairs and installs plastic and composite panels and components	13.01 Prepares plastic and composite panels and components for repair 1, 2	13.02 Removes plastic and composite panels and components 1, 2	13.03 Repairs plastic and composite panels and components 1, 2	13.04 Installs plastic and composite panels and components 1, 2

Task C-14 Removes and installs non-structural glass	14.01 Removes non-structural glass 2 (3 in context)	14.02 Installs non-structural glass 2 (3 in context)

D – Repairs mechanical, electrical and alternative-fuel system components — 12%

Task D-15 Deactivates and reactivates alternative-fuel systems	15.01 Deactivates alternative-fuel systems 3	15.02 Reactivates alternative-fuel systems 3		
Task D-16 Removes and installs mechanical components	16.01 Removes mechanical components 3, 4	16.02 Installs mechanical components 3, 4		
Task D-17 Removes, repairs and installs electrical and electronic components	17.01 Removes electrical components 3	17.02 Repairs damaged wires and protective coverings 3	17.03 Installs electrical components 3	17.04 Services advanced electronic components 3, 4

E – Repairs interior components and services restraint systems — 10%

Task E-18 Repairs and replaces interior components	18.01 Repairs interior components 2	18.02 Replaces interior components 2

Task E-19 Services supplemental restraint systems (SRS)	19.01 Services seat belt restraint systems 3	19.02 Services air bags and related components 3

F – Performs refinishing procedures — 18%

Task F-20 Prepares surface	20.01 Performs initial preparation 1	20.02 Masks surface 1	20.03 Strips surface 1	20.04 Sands surface 1
Task F-21 Uses repair materials	21.01 Mixes repair materials 1	21.02 Applies repair materials 1		
Task F-22 Prepares refinishing equipment	22.01 Prepares spray booth 1, 2	22.02 Performs spray gun setup 1, 2		
Task F-23 Prepares refinishing materials	23.01 Mixes refinishing materials 1, 2, 3, 4	23.02 Performs colour adjustments 2, 3, 4		
Task F-24 Applies refinishing materials	24.01 Applies sealers 1, 2	24.02 Applies base coat 1, 2	24.03 Applies single-stage paint 1, 2	24.04 Applies clear coat 1, 2
Task F-25 Prepares post-refinishing functions	25.01 Removes masking materials 1	25.02 Corrects surface imperfections 2		

G – Performs detailing and cleaning

5%

Task G-26 Details exterior	**26.01 Removes minor imperfections** 1	**26.02 Polishes vehicle** 1	**26.03 Touches up stone chips** 1
Task G-Cleans vehicle	**27.01 Cleans exterior** 1	**27.02 Cleans interior** 1	

TRAINING PROFILE CHART

This Training Profile Chart represents Saskatchewan Apprenticeship and Trade Certification Commission (SATCC) technical training at the topic level.

Level One (Harmonized)	Transcript Code	Hours
Trade Mathematics	MATH 131 – Theory	12
Metal Repair	METL 122 – Theory	20
	METL 123 – Shop	36
Refinishing	PNTG 122 – Theory	24
	PNTG 123 – Shop	32
Vehicle Body Trim Repair	VEHC 122 – Theory	24
	VEHC 123 – Shop	32
		180

Level Two (Harmonized)	Transcript Code	Hours
Refinishing	PNTG 222 – Theory	20
	PNTG 223 – Shop	40
Vehicle Body Trim Repair	VEHC 222 – Theory	23
	VEHC 223 – Shop	47
Welding	WELD 230 – Theory	15
	WELD 231 – Shop	35
		180

Level Three (Harmonized)	Transcript Code	Hours
Frames	ATBD 320 – Theory	15
	ATBD 321 – Shop	45
Metal Repair	METL 320 – Theory	30
	METL 321 – Shop	60
Refinishing	PNTG 320 – Theory	15
	PNTG 321 – Shop	45
		210

Level Four	Transcript Code	Hours
Wheel Alignment	ATBD 420 – Theory	15
	ATBD 421 – Shop	15
Metal Repair	METL 420 – Theory	30
	METL 421 – Shop	90
Refinishing	PNTG 420 – Theory	15
	PNTG 421 – Shop	45
		210

TECHNICAL TRAINING COURSE CONTENT

This chart outlines the model for Saskatchewan Apprenticeship and Trade Certification Commission (SATCC) technical training sequencing. For the harmonized level of training, a cross reference to the Red Seal Occupational Standard (RSOS) apprenticeship technical training sequencing, at the learning outcome level, is provided.

Implementation for harmonization took place progressively. Level one was implemented in 2020/2021, level two in 2021/2022, level three in 2022/2023, and level four in 2023/2024.

The Red Seal Automotive Service Technician Curriculum Outline, which provides additional detail of the Harmonized technical training, can be found at www.red-seal.ca

Level One — 6 weeks — 180 hours

Trade Mathematics — 12 hours

- use basic mathematics
- use basic algebra
- use metric system and formulas

RSOS topics covered in this section of training:

This section of training exceeds RSOS scope of work in Level One and exceeds the minimum sequencing as set out in the Auto Body and Collision Technician RSOS. Its purpose is to assist in the understanding of the Auto Body and Collision Technician trade (i.e. mixing ratios of chemicals.)

Metal Repair – Theory — 20 hours

- discuss auto body hand and power tools
- identify metal shaping procedures
- discuss metal preparation procedures
- describe minor dent repair procedures
- describe application and finishing procedures of fillers
- describe oxy-acetylene cutting and heating procedures
- describe plasma cutting procedures
- describe trade-related documents

Metal Repair – Shop — 36 hours

- demonstrate knowledge of trade terminology
- use auto body hand tools
- use auto body power tools
- demonstrate metal working procedures
- perform the application and finish filler process
- use oxy-acetylene equipment
- use plasma arc

RSOS topics covered in this section of training:

A-5 Uses communication and mentoring techniques

A-5.01 Uses communication techniques

- demonstrate communication practices with individuals or in a group
- listen using active listening practices
- receive and respond to feedback on work

- explain and provide feedback
- use questioning to improve communication
- participate in safety and information meetings
- demonstrate knowledge of trade terminology
- demonstrate knowledge of effective communication practices

A-2 Uses and maintains tools and equipment

A-2.01 Maintains hand and power tools

- clean hand and power tools
- lubricate hand and power tools
- identify, remove, repair or replace defective or unsafe hand and power tools
- drain compressed air system of water
- organize and store hand and power tools
- demonstrate knowledge of hand and power tools, their applications and procedures for use
- demonstrate knowledge of the maintenance and storage of hand and power tools

A-2.03 Uses lifting equipment

- identify lifting points of vehicle
- select lifting equipment
- operate lifting equipment within operating limitations
- check lifting equipment
- check lifting equipment components and safety backups
- demonstrate knowledge of vehicle lifting points
- demonstrate knowledge of lifting equipment, their applications and procedures for use
- demonstrate knowledge of jurisdictional regulatory requirements pertaining to lifting equipment

A-2.05 Maintains refinishing tools and equipment

- clean and maintain spray booths and preparation stations
- clean spray guns
- lubricate spray gun components
- maintain air dryers and filters
- calibrate refinishing material mixing scales
- maintain mixing equipment and paint mixing room
- maintain spray gun cleaners and recycling equipment
- check spray gun equipment for malfunctions
- maintain service and maintenance records
- demonstrate knowledge of types of refinishing tools and equipment, their components and applications
- demonstrate knowledge of refinishing tools and equipment maintenance

A-3 Uses and maintains welding equipment

A-3.01 Uses welding equipment

- determine base material to be welded
- select and use welding equipment
  protect vehicle
- select position for continuity clamp (work clamp)
- ensure a safe working environment
- prepare and clean work piece
- secure, clamp and brace work piece
- set welding equipment and shielding gas
- perform destructive test
- control heat while welding
- maintain appropriate angle, speed of travel and distance from work piece
- maintain appropriate position of electrode tips on work piece
- install components
- return vehicle integrity
- demonstrate knowledge of base materials

- demonstrate knowledge of welding equipment
- demonstrate knowledge of welding procedures

A-3.02 Maintains welding equipment

- check welding equipment
- ensure cylinders are secured
- check tension on drive rollers
- check wire liner
- clean out interior of GMAW equipment
- conduct systems check of STRSW equipment
- perform leak test
- demonstrate knowledge of procedures to maintain welding equipment

A-4 Organizes work and uses documentation

A-4.03 Organizes parts, materials and work area

- verify that necessary parts and consumables are available for task
- notify supervisor of missing, damaged and incorrect parts
- store parts
- inspect and prepare parts
- store electronic components in sealed packaging
- label parts and components
- arrange and sort work area
- demonstrate knowledge of organizing parts, materials and work area

A-4.04 Uses documentation

- interpret information in technical manuals/data sheets and bulletins
- interpret trade terminology and information on work orders (repair orders) and estimates
- maintain service records and maintenance logs
- document payable and actual hours
- interpret and complete safety documentation
- demonstrate knowledge of trade-related documentation and its use

C-12 Removes, repairs and installs metal panels and components

C-12.01 Prepares metal panels and components for repair

- identify procedures for removal, repair and installation
- clean metal panel with products and cleaners
- inspect panel
- remove components attached or adjacent to panel to access damaged area
- protect surrounding area and unrelated components from further damage
- demonstrate knowledge of metal panels and components, and their characteristics
- demonstrate knowledge of procedures to prepare metal panel for repair

C-12.02 Removes metal panels and components

- identify fasteners
- remove and label fasteners
- disconnect electrical components
- protect surrounding area from incidental contact and damage during removal
- select and use tools and equipment
- demonstrate knowledge of procedures to remove metal panels and components

C-12.03 Repairs metal panels and components

- obtain perimeter alignment
- identify metal
- remove existing coatings from damaged area
- rough out damaged area
- return metal to shape
- featheredge repaired area
- apply filler to repair area
- sand filler to contour

- identify surface imperfections
- determine corrective actions
- demonstrate knowledge of procedures to repair metal panels and components
- demonstrate knowledge of procedures used to align and adjust metal panels
- demonstrate knowledge of procedures to prepare panels for refinishing

C-12.04 Installs metal panels and components

- select and use lifting equipment
- protect surrounding area from incidental contact and damage during installation
- reconnect electrical components
- align panel
- secure panel
- verify fit and operation
- demonstrate knowledge of procedures to install metal panels and components
- demonstrate knowledge of procedures used to align and adjust metal panels

---

Refinishing – Theory **24 hours**

- describe preparation of panel to be painted
- identify methods of stripping paint
- describe undercoat application procedures
- identify primer sealers
- describe spray equipment
- describe paint mixing procedures
- explain paint application procedures
- describe procedures for paint defect correction
- describe air supply systems
- describe vehicle detailing procedures

Refinishing – Shop **32 hours**

- prepare panel to be painted
- strip painted panel
- apply undercoats
- apply primer sealers
- clean and maintain spray equipment
- mix paint
- apply paint to a panel
- correct paint defects
- service air supply systems
- perform an interior and exterior vehicle clean up

RSOS topics covered in this section of training:

F-20 Prepares surfaces

F-20.01 Performs initial preparation

- remove residual two-way tape and decal adhesive
- clean substrate with products and cleaners, and dry surface
- apply a pre-wash cleaner based on substrate and refinish material to be applied
- inspect substrate
- demonstrate knowledge of performing initial preparation of substrates and surfaces

F-20.02 Masks surface

- apply masking tape and paper
- apply spray mask (liquid mask)
- apply plastic sheeting
- apply edging tape behind flexible moulding
- apply final masking tape and paper before refinishing
- apply vinyl tape (fine edge)
- demonstrate knowledge of masking products, their applications and procedures for use

F-20.03 Strips surface

- protect surrounding area
- apply chemical stripper to work area using tools
- neutralize and remove chemical residue
- mechanically strip work area using tools
- media blast work area using media
- remove dust and residue from work area after mechanical or media stripping
- demonstrate knowledge of stripping equipment and products, their applications, safety precautions and procedures for use

F-20.04 Sands surface

- prepare blend area
- featheredge repaired area
- back sand repaired area
- scuff sand repaired area
- level surface by removing excess primer surfacer and filler material
- demonstrate knowledge of sanding equipment and materials, their applications, safety precautions and procedures for use

F-21 Uses repair materials

F-21.01 Mixes repair materials

- mix polyester putties
- measure and stir quantities of primers and primer surfacers
- agitate aerosol-type repair materials
- incorporate additives while mixing repair material
- demonstrate knowledge of repair materials, their applications and procedures for use

F-21.02 Applies repair materials

- spread two-part putties firmly and evenly over imperfections
- select and use spray gun with appropriate nozzle assembly
- adjust spray gun pattern, fluid delivery and air pressure
- apply primers and primer surfacer
- demonstrate knowledge of applying repair materials

F-22 Prepares refining equipment

F-22.01 Prepares spray booth

- clean spray booth
- adjust spray booth pressure
- adjust spray booth temperature
- utilize booth space to accommodate work to be completed

- position air movers
- tack off equipment
- identify spray booth problems
- correct spray booth problems
- demonstrate knowledge of spray booths, their function and preparation procedures
- demonstrate knowledge of spray booth problems and troubleshooting methods

F-22.02 Performs spray gum setup

- select spray gun, fluid tip, needle and air cap
- install fluid tip, needle and air cap
- attach paint cup to the spray gun
- attach spray gun to hose/coupler
- adjust air pressure, fluid delivery and fan width
- verify spray pattern
- identify spray pattern problems
- correct spray pattern problems
- demonstrate knowledge of spray guns, their application and setup
- demonstrate knowledge of spray pattern problems and correction methods

F-23 Prepares refinishing materials

F-23.01 Mixes refinishing materials

- agitate or shake toners
- clean mixing equipment before mixing
- determine required quantity of paint
- place mixing cup and tare (zero) the scale
- select mixing ratio and mixing equipment
- select products, reducers, additives and activators
- pour products, reducers, additives and activators
- mix ready-to-spray product
- strain paint
- demonstrate knowledge of refinishing materials and their applications
- demonstrate knowledge of procedures used to mix refinishing materials

F-23.02 Performs colour adjustments

- select variant
- spray test card
- spray a let-down panel
- visually compare test card against an adjacent polished panel
- adjust colour formula
- adjust spray gun or spraying technique
- seek technical support for challenging and non-existent colour formulas
- demonstrate knowledge of performing colour matching

F-24 Applies refinishing materials

F-24.01 Applies sealers

- check for undercoat defects
- correct undercoat defects
- select and use cleaning materials
- tack surface between coats
- spray sealer
- blend sealer
- verify coverage of sealer
- verify sealer is flashed prior to subsequent application
- demonstrate knowledge of applying sealers

F-24.02 Applies base coat

- ensure defects with the undercoat and existing top coat are corrected
- spray base coat

- blend base coat
- apply drop coat on metallic and pearl/mica
- spray mid-coat
- tack surface prior to first base coat and between subsequent coats
- verify base coat is flashed prior to subsequent application
- verify coverage of base coat
- demonstrate knowledge of applying base coats

F-24.03 Applies single-stage paint

- ensure undercoat defects are corrected
- select and use cleaning materials
- spray single-stage paint
- blend single-stage paint
- verify single-stage paint is flashed prior to subsequent application
- demonstrate knowledge of applying single-stage paint

F-24.04 Applies clear coat

- ensure topcoat defects are corrected
- spray clear coat
- blend clear coat
- verify clear coat is flashed prior to subsequent application
- correct defects
- demonstrate knowledge of applying clear coat

F-25 Performs post-refinishing functions

F-25.01 Removes masking materials

- select removal procedures
- remove masking products
- remove spray mask
- inspect for masking issues
- demonstrate knowledge of removing masking products
- demonstrate knowledge of masking issues

F-25.02 Corrects surface imperfections

- identify surface imperfections
- determine corrective actions
- sand refinish area
- compound refinish area
- polish refinish area
- demonstrate knowledge of surface imperfections
- demonstrate knowledge of the corrective action of various surface imperfections
- demonstrate knowledge of the causes of various surface imperfections

G-26 Details exterior

G-26.01 Removes minor imperfections

- identify minor imperfections
- determine corrective actions
- wet sand, de-nib and shave required areas
- remove overspray
- demonstrate knowledge of procedures to remove overspray and minor imperfections
- demonstrate knowledge of the causes of various minor imperfections

G-26.02 Polishes vehicle

- evaluate paint finish
- determine polishing procedure
- protect surrounding areas
- select and use tools, equipment and materials
- polish surfaces
- wet sand and polish headlights

- control speed, pressure and angle of polisher
- demonstrate knowledge of procedures used to polish vehicle
- demonstrate knowledge of polishing materials and their characteristics
- demonstrate knowledge of polishing equipment, its applications and procedures for use

G-26.03 Touch up stone chips

- identify severity of stone chip damage
- determine vehicle colour
- prepare damaged area and apply touch-up paint
- demonstrate knowledge of stone chips, their characteristics and repair procedures

G-27 Cleans vehicle

G-27.01 Cleans exterior

- select and use tools and equipment
- select materials
- follow washing sequence
- dry vehicle
- clean and dry glass
- demonstrate knowledge of vehicle exterior cleaning tools and equipment
- demonstrate knowledge of vehicle exterior cleaning materials
- demonstrate knowledge of practices and procedures to clean vehicle exterior

G-27.02 Cleans interior

- remove items from interior
- vacuum interior
- shampoo upholstery
- deodorize interior
- apply silicone-free surface conditioners, cleaners and dressings to surfaces
- clean interior of glass
- demonstrate knowledge of vehicle interior cleaning tools and equipment
- demonstrate knowledge of vehicle interior cleaning materials
- demonstrate knowledge of practices and procedures to clean vehicle interior

---

Vehicle Body Trim Repair – Theory — 24 hours

- discuss personal and shop safety
- discuss electrical systems
- identify fastening devices
- describe body trim and mouldings
- identify passenger restraint systems
- describe plastic repair
- describe body panel replacement and alignment

Vehicle Body Trim Repair – Shop — 32 hours

- repair electrical systems
- replace vehicle trim components
- repair plastic components
- replace body panels and associated trim

RSOS topics covered in this section of training:

A-1 Performs safety-related functions

A-1.01 Maintains safe work environment

- maintain clean and organized work station and repair facility
- recognize and eliminate potential fire hazards
- perform job hazard assessment (JHA)
- handle, remove, dispose of and recycle hazardous products and waste
- apply jurisdictional workplace safety and health regulations

- recognize and eliminate personal injury welding hazards
- tag and lock out damaged tools, equipment and vehicles
- maintain clear path to emergency exits and designated emergency meeting area
- document, complete and maintain safety-related documentation
- demonstrate knowledge of safe work practices
- demonstrate knowledge of regulatory requirements pertaining to safety
- demonstrate knowledge of safety-related documentation and its use

A-1.02 Uses personal protective equipment (PPE) and safety equipment

- select and wear personal protective equipment (PPE)
- select and use safety equipment
- inspect and maintain PPE and safety equipment
- store PPE and safety equipment
- dispose of expired, damaged and used PPE and safety equipment
- demonstrate knowledge of PPE and safety equipment, their applications, maintenance, storage and procedures for use
- demonstrate knowledge of regulatory requirements pertaining to PPE and safety equipment

A-6 Removes and installs trim and hardware

A-6.01 Removes trim and hardware

- determine material composition of trim, hardware and substrate
- identify how trim and hardware is attached
- select and use tools and equipment
- document position of trim for reinstallation
- remove trim and hardware and identify reusable parts
- remove adhesive tapes
- remove adhesive residue
- demonstrate knowledge of types of trim and hardware, their applications and characteristics

A-6.02 Installs trim and hardware

- clean panel and verify that substrate has proper temperature for adhesion
- determine application method
- select and use tools
- install mechanical fasteners
- select and apply adhesion promoters and adhesives to trim
- align and install trim and hardware
- verify for fit and finish and take corrective action
- inspect for leaks and noises and take corrective action
- demonstrate knowledge of types of trim and hardware, their applications and characteristics
- demonstrate knowledge of procedures to install trim and hardware
- demonstrate knowledge of procedures to detect and repair noises and leaks attributed to trim and hardware

C-13 Removes, repairs and installs plastic and composite panels and components

C-13.01 Prepares plastic and composite panels and components

- clean plastic and composite panel
- inspect panel
- remove plastic and composite components attached or adjacent to panel to access damaged area
- protect surrounding area and unrelated components from damage
- demonstrate knowledge of plastic and composite panels and components, and their characteristics
- demonstrate knowledge of procedures to prepare plastic and composite panels and components for repair

C-13.02 Removes plastic and composite panels and components

- identify fasteners
- remove and label fasteners

- disconnect electrical components
- protect surrounding area from incidental contact and damage during removal
- select and use tools and equipment
- demonstrate knowledge of procedures to remove plastic and composite panels and components

C-13.03 Repairs plastic and composite panels and components

- identify material
- obtain perimeter alignment
- remove coatings from damaged area
- remove imperfections from damaged area
- perform repair
- featheredge repaired area
- apply adhesion promoters
- apply repair material to repair area
- sand repair material
- identify surface imperfections
- determine corrective actions
- demonstrate knowledge of procedures to repair plastic and composite panels and components
- demonstrate knowledge of procedures to prepare panels for refinishing

C-13.04 Installs plastic and composite panels and components

- select and use lifting equipment
- protect surrounding area from incidental contact and damage during installation
- connect electrical components
- align panel
- secure panel
- verify fit and operation
- demonstrate knowledge of procedures to install plastic and composite panels and components

---

No Level One topics from the RSOS are taught in context.

Level Two | 6 weeks | 180 hours

Refinishing – Theory — 20 hours

- describe preparation procedures for a blend repair
- discuss colour matching procedures
- describe painting procedures for a blend repair
- identify plastic parts refinishing procedures
- explain decal removal and installation methods

Refinishing – Shop — 40 hours

- perform blend panel preparation techniques
- perform colour matching procedure
- perform paint blending procedures
- paint projects

RSOS topics covered in this section of training:

F-22 Prepares refining equipment

F-22.01 Prepares spray booth

- clean spray booth
- adjust spray booth pressure
- adjust spray booth temperature
- utilize booth space to accommodate work to be completed
- position air movers
- tack off equipment
- identify spray booth problems
- correct spray booth problems
- demonstrate knowledge of spray booths, their function and preparation procedures
- demonstrate knowledge of spray booth problems and troubleshooting methods

F-22.02 Performs spray gum setup

- select spray gun, fluid tip, needle and air cap
- install fluid tip, needle and air cap
- attach paint cup to the spray gun
- attach spray gun to hose/coupler
- adjust air pressure, fluid delivery and fan width
- verify spray pattern
- identify spray pattern problems
- correct spray pattern problems
- demonstrate knowledge of spray guns, their application and setup
- demonstrate knowledge of spray pattern problems and correction methods

F-23 Prepares refinishing materials

F-23.01 Mixes refinishing materials

- agitate or shake toners
- clean mixing equipment before mixing
- determine required quantity of paint
- place mixing cup and tare (zero) the scale
- select mixing ratio and mixing equipment
- select products, reducers, additives and activators
- pour products, reducers, additives and activators
- mix ready-to-spray product
- strain paint
- demonstrate knowledge of refinishing materials and their applications
- demonstrate knowledge of procedures used to mix refinishing materials

F-23.02 Performs colour adjustments

- select variant
- spray test card
- spray a let-down panel
- visually compare test card against an adjacent polished panel
- adjust colour formula
- adjust spray gun or spraying technique
- seek technical support for challenging and non-existent colour formulas
- demonstrate knowledge of performing colour matching

F-24 Applies refinishing materials

F-24.01 Applies sealers

- check for undercoat defects
- correct undercoat defects
- select and use cleaning materials
- tack surface between coats
- spray sealer
- blend sealer
- verify coverage of sealer
- verify sealer is flashed prior to subsequent application
- demonstrate knowledge of applying sealers

F-24.02 Applies base coat

- ensure defects with the undercoat and existing top coat are corrected
- spray base coat
- blend base coat
- apply drop coat on metallic and pearl/mica
- spray mid-coat
- tack surface prior to first base coat and between subsequent coats
- verify base coat is flashed prior to subsequent application
- verify coverage of base coat
- demonstrate knowledge of applying base coats

F-24.03 Applies single-stage paint

- ensure undercoat defects are corrected
- select and use cleaning materials
- spray single-stage paint
- blend single-stage paint
- verify single-stage paint is flashed prior to subsequent application
- demonstrate knowledge of applying single-stage paint

F-24.04 Applies clear coat

- ensure topcoat defects are corrected
- spray clear coat
- blend clear coat
- verify clear coat is flashed prior to subsequent application
- correct defects
- demonstrate knowledge of applying clear coat

F-25 Performs post-refinishing functions

F-25.02 Corrects surface imperfections

- identify surface imperfections
- determine corrective actions
- sand refinish area
- compound refinish area
- polish refinish area
- demonstrate knowledge of surface imperfections
- demonstrate knowledge of the corrective action of various surface imperfections

- demonstrate knowledge of the causes of various surface imperfections

Vehicle Body Trim Repair – Theory — 23 hours

- describe metal panel collision repair procedures
- describe procedures to repair weakened and damaged metal panels
- describe plastic panel repair procedures
- describe structural glass replacement procedures
- describe the removal and installation process of vehicle door components
- discuss electrical system components and protection procedures

Vehicle Body Trim Repair – Shop — 47 hours

- repair metal panels.
- repair plastic panels
- replace structural glass
- perform removal and installation of vehicle door components
- perform basic electrical repairs

RSOS topics covered in this section of training:

A-4 Organizes work and uses documentation

A-4.02 Prepares repair plan

- review work order and estimate
- perform and document pre-scan of vehicle, if required
- review OEM repair procedures and specifications
- verify parts are available
- inspect ordered parts
- determine sequence of repair procedure
- determine tasks to be completed
- demonstrate knowledge of vehicle construction
- demonstrate knowledge of vehicle components
- demonstrate knowledge of work orders (repair orders) and estimates
- demonstrate knowledge of preparing and interpreting repair plans

A-4.03 Organizes parts, materials and work area

- verify that necessary parts and consumables are available for task
- notify supervisor of missing, damaged and incorrect parts
- store parts
- inspect and prepare parts
- store electronic components in sealed packaging
- label parts and components
- arrange and sort work area
- demonstrate knowledge of organizing parts, materials and work area

A-4.04 Uses documentation

- interpret information in technical manuals/data sheets and bulletins
- interpret trade terminology and information on work orders (repair orders) and estimates
- maintain service records and maintenance logs
- document payable and actual hours
- interpret and complete safety documentation
- demonstrate knowledge of trade-related documentation and its use

A-8 Applies corrosion protection and sound deadening materials

A-8.01 Applies corrosion inhibitors and undercoats

- identify areas subject to corrosion
- protect surrounding areas and components from inhibitors
- apply inhibitors to required areas and components
- remove excess inhibitors from surrounding area

- identify usage and location of replacement product
- prepare surface
- apply weld-through primer
- demonstrate knowledge of corrosion, its causes and effects
- demonstrate knowledge of types of corrosion protection, their characteristics and applications
- demonstrate knowledge of the procedures to restore corrosion protection
- demonstrate knowledge of undercoats, their applications, and procedures for use
- demonstrate knowledge of undercoat materials, their characteristics and mixing procedures

A-8.02 Applies seam sealers and sound deadeners

- identify and replace original seam sealers and sound deadening materials
- protect surrounding areas and components from excess material
- prepare surface prior to application of seam sealers and sound deadening materials
- apply seam sealers
- apply sound deadening materials
- apply sound deadening and structural foam
- remove residual material from surrounding area after application of seam sealers and sound deadening materials
- demonstrate knowledge of seam sealers and sound deadening materials
- demonstrate knowledge of procedures to apply seam sealers and sound deadening materials

B-11 Removes, installs and repairs structural and laminated glass

B-11.01 Removes structural glass

- remove trim, moulding, non-structural and electrical components
- release urethane seal
- remove glass from opening
- demonstrate knowledge of structural glass, its characteristics and importance to vehicle structure
- demonstrate knowledge of the procedures to remove structural glass

B-11.02 Installs structural glass

- test fit glass in opening and check for defects in glass and mounting surfaces
- prepare mounting surfaces
- prepare mating areas using primers
- apply urethane to opening and replace spacer blocks
- set glass in opening manually or using lifting devices, and verify uniformity of gaps
- secure glass in place to avoid movement until urethane is set
- perform leak test
- install electrical and non-structural components and trim
- calibrate electrical components
- complete post-repair documentation
- demonstrate knowledge of the procedures to install structural glass

B-11.03 Repairs laminated glass

- inspect glass to determine repair process
- clean glass to remove contaminants
- check that glass is dry and at required temperature for resin flow
- clean out chipped area of laminated glass
- mount resin injection tool onto repair area
- inject resin into damaged area
- cure resin
- remove excess resin
- polish glass
- demonstrate knowledge of procedures to repair laminated glass

C-12 Removes, repairs and installs metal panels and components

C-12.03 Repairs metal panels and components

- obtain perimeter alignment

- identify metal
- remove existing coatings from damaged area
- rough out damaged area
- return metal to shape
- featheredge repaired area
- apply filler to repair area
- sand filler to contour
- identify surface imperfections
- determine corrective actions
- demonstrate knowledge of procedures to repair metal panels and components
- demonstrate knowledge of procedures used to align and adjust metal panels
- demonstrate knowledge of procedures to prepare panels for refinishing

C-13 Removes, repairs and installs plastic and composite panels and components

C-13.01 Prepares plastic and composite panels and components

- clean plastic and composite panel
- inspect panel
- remove plastic and composite components attached or adjacent to panel to access damaged area
- protect surrounding area and unrelated components from damage
- demonstrate knowledge of plastic and composite panels and components, and their characteristics
- demonstrate knowledge of procedures to prepare plastic and composite panels and components for repair

C-13.02 Removes plastic and composite panels and components

- identify fasteners
- remove and label fasteners
- disconnect electrical components
- protect surrounding area from incidental contact and damage during removal
- select and use tools and equipment
- demonstrate knowledge of procedures to remove plastic and composite panels and components

C-13.03 Repairs plastic and composite panels and components

- identify material
- obtain perimeter alignment
- remove coatings from damaged area
- remove imperfections from damaged area
- perform repair
- featheredge repaired area
- apply adhesion promoters
- apply repair material to repair area
- sand repair material
- identify surface imperfections
- determine corrective actions
- demonstrate knowledge of procedures to repair plastic and composite panels and components
- demonstrate knowledge of procedures to prepare panels for refinishing

C-13.04 Installs plastic and composite panels and components

- select and use lifting equipment
- protect surrounding area from incidental contact and damage during installation
- connect electrical components
- align panel
- secure panel
- verify fit and operation
- demonstrate knowledge of procedures to install plastic and composite panels and components

C-14 Removes and installs non-structural glass

C-14.01 Removes non-structural glass

- remove trim
- position glass
- identify and remove fasteners
- extract glass from vehicle
- label, store or dispose of glass
- inspect vehicle for damage
  remove broken glass
- demonstrate knowledge of non-structural glass and hardware components, and their characteristics
- demonstrate knowledge of procedures to remove non-structural glass, and its associated hardware and attachments

C-14.02 Installs non-structural glass

- select and use tools, equipment, hardware and fasteners
- inspect glass for defects
- insert glass in opening and attach with hardware and fasteners
- verify fit and operation of glass
- install and reprogram components
- demonstrate knowledge of procedures to install non-structural glass, and its associated hardware and attachments

E-18 Repairs and replaces interior components

E-18.01 Repairs interior components

- handle and store interior components with care during repair
- clean components
- select and use tools and equipment for repair procedures
- select and use repair materials
- re-attach mounting points for clips
- repair hard plastic
- install in original location with original type of fasteners
- complete installation
- demonstrate knowledge of procedures to repair interior components

E-18.02 Replaces interior components

- disconnect and isolate battery when replacing trim and interior components
- verify replacement interior component matches damaged component
- identify types and locations of fasteners
- remove interior components
- transfer fasteners, clips and retainers from removed component to component to be installed
- install new component into its original location with OEM-type fasteners
- secure interior components
- connect electrical components and reconnect battery
- complete installation
- demonstrate knowledge of procedures to replace interior components
- demonstrate knowledge of procedures to install electrical components

---

Welding – Theory **15 hours**

- discuss safe working procedures
- identify metals
- describe GMAW procedures
- describe resistance spot welding

Welding – Shop **35 hours**

- demonstrate safe working procedures

- use GMAW welding equipment
- use STRSW equipment

RSOS topics covered in this section of training:

A-2 Uses and maintains tools and equipment

A-2.03 Uses lifting equipment

- identify lifting points of vehicle
- select lifting equipment
- operate lifting equipment within operating limitations
- check lifting equipment
- check lifting equipment components and safety backups
- demonstrate knowledge of vehicle lifting points
- demonstrate knowledge of lifting equipment, their applications and procedures for use
- demonstrate knowledge of jurisdictional regulatory requirements pertaining to lifting equipment

0A-2.05 Maintains refinishing tools and equipment

- clean and maintain spray booths and preparation stations
- clean spray guns
- lubricate spray gun components
- maintain air dryers and filters
- calibrate refinishing material mixing scales
- maintain mixing equipment and paint mixing room
- maintain spray gun cleaners and recycling equipment
- check spray gun equipment for malfunctions
- maintain service and maintenance records
- demonstrate knowledge of types of refinishing tools and equipment, their components and applications
- demonstrate knowledge of refinishing tools and equipment maintenance

A-3 Uses and maintains welding equipment

A-3.01 Uses welding equipment

- determine base material to be welded
- select and use welding equipment
  protect vehicle
- select position for continuity clamp (work clamp)
- ensure a safe working environment
- prepare and clean work piece
- secure, clamp and brace work piece
- set welding equipment and shielding gas
- perform destructive test
- control heat while welding
- maintain appropriate angle, speed of travel and distance from work piece
- maintain appropriate position of electrode tips on work piece
- install components
- return vehicle integrity
- demonstrate knowledge of base materials
- demonstrate knowledge of welding equipment
- demonstrate knowledge of welding procedures

A-3.02 Maintains welding equipment

- check welding equipment
- ensure cylinders are secured
- check tension on drive rollers
- check wire liner
- clean out interior of GMAW equipment
- conduct systems check of STRSW equipment

- perform leak test
- demonstrate knowledge of procedures to maintain welding equipment

---

Level Two topics from the RSOS that are taught in context:

Safety*-Related *Functions
Communication

For *details regarding the In Context Topics, see page 43*

Level Three — 7 weeks — 210 hours

Frames – Theory — **15 hours**

- describe types of automobile construction
- identify effects of collision forces
- identify high strength steel components
- identify hydro-formed components
- describe stress relieving
- determine the extent of impact damage.
- explain the use of measuring systems
- explain straightening techniques

Frames – Shop — **45 hours**

- confirm the extent of damage
- use measuring systems
- assemble a complete plan of repair
- perform straightening techniques

RSOS topics that are covered:

A-2 Uses and maintains tools and equipment

A-2.02 Maintains frame and unibody repair and measuring equipment

- check frame and unibody repair equipment components
- check level of hydraulic fluids in frame and unibody repair equipment
- check air pressure in frame and unibody repair equipment
- clean frame and unibody repair equipment
- lubricate frame and unibody repair equipment
- calibrate measuring equipment
- identify, remove, repair or replace defective measuring equipment
- update measuring equipment software
- clean and store measuring equipment
- demonstrate knowledge of frame and unibody repair equipment and components, their applications and procedures for use
- demonstrate knowledge of the maintenance and storage of frame and unibody repair equipment
- demonstrate knowledge of measuring equipment, their applications and procedures for use
- demonstrate knowledge of the maintenance and storage of measuring equipment

A-2.04 Uses diagnostic equipment

- check function of diagnostic equipment
- calibrate diagnostic equipment
- clean and store diagnostic equipment
- update diagnostic equipment software
- perform pre-scan of vehicle to identify faults
- perform post-scan of vehicle to confirm repair
- demonstrate knowledge of diagnostic equipment, their applications and procedures for use
- demonstrate knowledge of the maintenance and storage of diagnostic equipment

A-3 Uses and maintains welding equipment

A-3.01 Uses welding equipment

- determine base material to be welded
- select and use welding equipment
  protect vehicle
- select position for continuity clamp (work clamp)
- ensure a safe working environment
- prepare and clean work piece

- secure, clamp and brace work piece
- set welding equipment and shielding gas
- perform destructive test
- control heat while welding
- maintain appropriate angle, speed of travel and distance from work piece
- maintain appropriate position of electrode tips on work piece
- install components
- return vehicle integrity
- demonstrate knowledge of base materials
- demonstrate knowledge of welding equipment
- demonstrate knowledge of welding procedures

A-3.02 Maintains welding equipment

- check welding equipment
- ensure cylinders are secured
- check tension on drive rollers
- check wire liner
- clean out interior of GMAW equipment
- conduct systems check of STRSW equipment
- perform leak test
- demonstrate knowledge of procedures to maintain welding equipment

A-4 Organizes work and uses documentation

A-4.01 Prepares estimates and supplements

- discuss with customer collision details
- document information on estimate
- interpret vehicle identification number (VIN) and vehicle build labels information
- visually assess damage to vehicle
- perform and document pre-scan of vehicle
- perform initial measurements
- photograph vehicle
- dismantle vehicle to access and assess hidden damage
- document any previous damage on vehicle
- document estimate of damage
- review estimate with customer
- prepare supplement, if required
- demonstrate knowledge of trade-related documentation and its use
- demonstrate knowledge of vehicle construction
- demonstrate knowledge of the procedures used to prepare estimate and supplement documentation
- demonstrate knowledge of the procedures used to perform a visual inspection
- demonstrate knowledge of vehicle component operation
- demonstrate knowledge of the procedures used to perform damage analysis

A-4.04 Uses documentation

- interpret information in technical manuals/data sheets and bulletins
- interpret trade terminology and information on work orders (repair orders) and estimates
- maintain service records and maintenance logs
- document payable and actual hours
- interpret and complete safety documentation
- demonstrate knowledge of trade-related documentation and its use

B-9 Prepares for repair and replacement of structural components

B-9.01 Identifies extent of damage

- visually inspect components
- identify hidden damage
- compare measurements against OEM specifications

- demonstrate knowledge of vehicle construction and structural components
- demonstrate knowledge of procedures to analyze damage

B-9.02 Removes components for access

- identify components that need to be removed
- remove body, mechanical and electrical components
- inspect removed components
- store, clean and dispose of components
- label, organize and store removed components
- demonstrate knowledge of procedures to remove components
- demonstrate knowledge of procedures to inspect for physical damage
- demonstrate knowledge of labelling, organizing and storage of removed components

B-9.03 Performs vehicle setup

- identify anchoring points for clamps and fixtures
- prepare anchoring locations
- anchor vehicle to structural repair system
- demonstrate knowledge of procedures to set up vehicle

B-10 Repairs, removes and installs structural components

B-10.01 Repairs structural components

- identify composition of structural components using methods
- fasten straightening equipment to the vehicle
- isolate damaged area
- apply corrective forces to damaged areas
- adjust repair plan
- use stress relief techniques while pulling
- take three-dimensional measurements and test fit related components
- demonstrate knowledge of metals and their characteristics
- demonstrate knowledge of metallurgic principles and their applications to control expansion, contraction and distortion
- demonstrate knowledge of structural components
- demonstrate knowledge of procedures and techniques used to repair structural components
- demonstrate knowledge of procedures and techniques used to adjust and align structural components

B-10.02 Removes structural components

- identify areas for sectioning
- remove fasteners
- remove spot welds in pre-determined areas
- cut and remove components using cutting tools and equipment
- remove noise, vibration and harshness (NVH) and structural foams
- demonstrate knowledge of procedures to remove structural components
- demonstrate knowledge of cutting tools and equipment, their applications and procedures for use

B-10.03 Installs structural components

- prepare structural components
- perform initial fastening of components
- take ongoing measurements and test fit related components
- perform final fastening of components
- clean and dress repair areas
- install NVH and structural foams
- inspect fastening methods
- demonstrate knowledge of procedures to install structural components

Metal Repair – Theory — 30 hours

- describe structural parts replacement and sectioning procedures
- identify damaged air conditioning components
- identify damaged mechanical heating and cooling components
- identify SRS systems and components
- explain electrical troubleshooting procedures
- explain a complete vehicle inspection
- identify hybrid repair safety procedures

Metal Repair – Shop — 60 hours

- use structural parts replacement and sectioning procedures
- replace damaged air conditioning components
- replace damaged mechanical heating and cooling system components
- demonstrate electrical troubleshooting procedures
- perform a complete vehicle inspection

RSOS topics that are covered:

D-15 Deactivates and reactivates alternative-fuel systems

D-15.01 Deactivates alternative-fuel systems

- identify type of alternative-fuel system
- inspect low-voltage and high-voltage battery
- test electrolyte for pH level
- ensure zero energy
- disconnect low-voltage battery for 12V power systems
- disable high-voltage system
- remove battery pack
- close alternative-fuel supply valves
- remove alternative-fuel cells
- demonstrate knowledge of alternative-fuel systems
- demonstrate knowledge of procedures to deactivate alternative-fuel systems

D-15.02 Reactivates alternative-fuel systems

- install battery pack
- enable high-voltage system
- open alternative-fuel supply valves
- connect low-voltage battery for 12V power systems
- demonstrate knowledge of procedures to reactivate alternative-fuels systems

D-16 Removes and installs mechanical components

D-16.01 Removes mechanical components

- select and use specialized tools and equipment
- determine removal procedure and mechanical components to be removed
- identify type of refrigerant and coolant
- recover air conditioning (A/C) refrigerant
- drain coolant system
- disconnect lines and hoses for mechanical systems
- disconnect electrical connections from mechanical systems
- remove mechanical fasteners from components
- remove mechanical systems and components
- demonstrate knowledge of mechanical systems and components
- demonstrate knowledge of procedures to remove mechanical systems and components

D-16.02 Installs mechanical components

- determine installation procedure
- lubricate mechanical components
- preassemble mechanical components

- torque mechanical components to specified tolerances
- connect hoses and lines, and fasten clamps to mechanical components
- refill systems with fluids
- connect electrical connections to mechanical systems and reprogram
- recharge A/C system
- verify mechanical systems operation
- demonstrate knowledge of procedures to install mechanical systems and components

D-17 Removes, repairs and installs electrical and electronic components

D-17.01 Removes electrical components

- disconnect and isolate 12V battery
- disconnect electrical components
- remove electrical components
- dispose of damaged electrical components
- demonstrate knowledge of electrical theory and its applications
- demonstrate knowledge of electrical schematics, their applications and interpretation
- demonstrate knowledge of procedures to remove 12V batteries
- demonstrate knowledge of procedures to remove electrical components

D-17.02 Repairs damaged wires and protective coverings

- remove components and protective coverings
- determine necessary repairs
- perform repairs using methods
- identify and remove corrosion from connections and apply corrosion protection
- identify areas requiring protection
- verify operation of electrical and related components
- complete repair
- demonstrate knowledge of procedures to determine damage to electrical and electronic systems and components
- demonstrate knowledge of procedures for diagnosing electrical and electronic systems and components
- demonstrate knowledge of procedures to repair damaged wires and protective coverings
- demonstrate knowledge of types of corrosion protection for electrical components, their characteristics and applications

D-17.03 Installs electrical components

- preassemble electrical components prior to final installation
- install fasteners
- connect electrical components
- connect battery and check operation of electrical components
- scan vehicle for codes
- demonstrate knowledge of procedures to install electrical components

D-17.04 Services advanced electronic components

- identify type of advanced electronic component
- perform pre-scan of vehicle
- repair or replace damaged component
- perform or arrange recalibration of system
- perform road test
- perform post-scan
- demonstrate knowledge of procedures to service advanced electronic components

E-19 Services supplemental restraint systems (SRS)

E-19.01 Services seat belt restraint systems

- perform diagnostic pre-scan
- disconnect battery and allow residual charge to dissipate
- identify type of seat belt restraint systems and safe handling procedures
- identify failed seatbelt components

- remove components in sequence
- check for secondary damage to surrounding components
- install seatbelt components
- verify seat belt installation and operation
- reconnect battery
- allow vehicle to complete a self-diagnostic check
- perform diagnostic post-scan
- demonstrate knowledge of electrical theory and its relationship with seat belt restraint systems
- demonstrate knowledge of seat belt restraint systems, their components, operation and failed seatbelt component indicators
- demonstrate knowledge of procedures to service seat belt restraint systems and their related components

E-19.02 Services air bags and related components

- perform diagnostic pre-scan
- disconnect battery and allow residual charge to dissipate
- identify type of air bag system
- take precautionary measures during air bag removal, handling, storage and disposal
- remove components in sequence
- check for secondary damage to surrounding components
- verify components for installation
- install components
- verify installation, fit and alignment of air bag system and components
- reconnect battery
- allow vehicle to complete a self-diagnostic check
- perform diagnostic post-scan
- demonstrate knowledge of electrical theory and its relationship with air bags and related components
- demonstrate knowledge of air bag systems, their components, operation and safety
- demonstrate knowledge of procedures to service air bag systems and their related components

A-7 Performs final inspections

A-7.01 Performs final operational check

- check affected fluid levels
- check operation of components that were repaired and replaced
- perform post-scan of vehicle
- check tire pressure and wheel torque
- perform road test
- reset clocks and radio codes
- demonstrate knowledge of procedures to perform final quality operational checks

---

Refinishing – Theory — 15 hours

- discuss multi-coat refinishing

Refinishing – Shop — 45 hours

- prepare multi-coat panels
- finish multi-coat panels
- refinish student projects

RSOS topics that are covered:

F-23 Prepares refinishing materials

F-23.01 Mixes refinishing materials

- agitate or shake toners
- clean mixing equipment before mixing
- determine required quantity of paint

- place mixing cup and tare (zero) the scale
- select mixing ratio and mixing equipment
- select products, reducers, additives and activators
- pour products, reducers, additives and activators
- mix ready-to-spray product
- strain paint
- demonstrate knowledge of refinishing materials and their applications
- demonstrate knowledge of procedures used to mix refinishing materials

F-23.02 Performs colour adjustments

- select variant
- spray test card
- spray a let-down panel
- visually compare test card against an adjacent polished panel
- adjust colour formula
- adjust spray gun or spraying technique
- seek technical support for challenging and non-existent colour formulas
- demonstrate knowledge of performing colour matching

Level Three topics from the RSOS that are taught in context:

Safety*-Related *Functions
Communication
Structural and Laminated Glass
(Removes, Installs and Repairs)
Non-Structural Glass
(Removes and Installs)

For details *regarding the In Context Topics, see page 43*

Level Four	7 weeks	210 hours

Wheel Alignment – Theory — **15 hours**

- identify suspension components
- identify steering components
- identify wheel alignment angles
- identify theoretical and practical mentoring techniques

Wheel Alignment – Shop — **15 hours**

- perform a computerized four-wheel alignment
- replace suspension and steering parts as required

Metal Repair – Theory — **30 hours**

- explain estimate essentials and flat rate operations
- describe a computerized damage report
- describe rollover damage repair procedures
- explain roof replacement procedures
- explain aluminum repair procedures
- explain electrical system diagnostic procedures
- identify hybrid repair safety procedures

Metal Repair – Shop — **90 hours**

- prepare a computerized damage report
- perform pulling and alignment procedures
- perform structural panel replacement
- perform aluminum welds
- troubleshoot vehicle electrical problems

Refinishing – Theory — **15 hours**

- discuss multi-coat colour matching and blending procedures
- discuss automotive refinishing

Refinishing – Shop — **45 hours**

- perform the preparation and refinishing of multi-coat panels
- perform the preparation and refinishing of the project vehicle

In Context Topics

In context means learning that has already taken place and is being applied to the applicable task. Learning outcomes for in context topics are accomplished in other topics in that level.

A-1 Performs safety-related functions

A-1.01 Maintains safe work environment

- maintain clean and organized work station and repair facility
- recognize and eliminate potential fire hazards
- perform job hazard assessment (JHA)
- handle, remove, dispose of and recycle hazardous products and waste
- apply jurisdictional workplace safety and health regulations
- recognize and eliminate personal injury welding hazards
- tag and lock out damaged tools, equipment and vehicles
- maintain clear path to emergency exits and designated emergency meeting area
- document, complete and maintain safety-related documentation
- demonstrate knowledge of safe work practices
- demonstrate knowledge of regulatory requirements pertaining to safety
- demonstrate knowledge of safety-related documentation and its use

A-1.02 Uses personal protective equipment (PPE) and safety equipment

- select and wear personal protective equipment (PPE)
- select and use safety equipment
- inspect and maintain PPE and safety equipment
- store PPE and safety equipment
- dispose of expired, damaged and used PPE and safety equipment
- demonstrate knowledge of PPE and safety equipment, their applications, maintenance, storage and procedures for use
- demonstrate knowledge of regulatory requirements pertaining to PPE and safety equipment

A-5 Uses communication and mentoring techniques

A-5.01 Uses communication techniques

- demonstrate communication practices with individuals or in a group
- listen using active listening practices
- receive and respond to feedback on work
- explain and provide feedback
- use questioning to improve communication
- participate in safety and information meetings
- demonstrate knowledge of trade terminology
- demonstrate knowledge of effective communication practices

B-11 Removes, installs and repairs structural and laminated glass

B-11.01 Removes structural glass

- remove trim, moulding, non-structural and electrical components
- release urethane seal
- remove glass from opening
- demonstrate knowledge of structural glass, its characteristics and importance to vehicle structure
- demonstrate knowledge of the procedures to remove structural glass

B-11.02 Installs structural glass

- test fit glass in opening and check for defects in glass and mounting surfaces
- prepare mounting surfaces
- prepare mating areas using primers
- apply urethane to opening and replace spacer blocks
- set glass in opening manually or using lifting devices, and verify uniformity of gaps

- secure glass in place to avoid movement until urethane is set
- perform leak test
- install electrical and non-structural components and trim
- calibrate electrical components
- complete post-repair documentation
- demonstrate knowledge of the procedures to install structural glass

B-11.03 Repairs laminated glass

- inspect glass to determine repair process
- clean glass to remove contaminants
- check that glass is dry and at required temperature for resin flow
- clean out chipped area of laminated glass
- mount resin injection tool onto repair area
- inject resin into damaged area
- cure resin
- remove excess resin
- polish glass
- demonstrate knowledge of procedures to repair laminated glass

C-14 Removes and installs non-structural glass

C-14.01 Removes non-structural glass

- remove trim
- position glass
- identify and remove fasteners
- extract glass from vehicle
- label, store or dispose of glass
- inspect vehicle for damage
  remove broken glass
- demonstrate knowledge of non-structural glass and hardware components, and their characteristics
- demonstrate knowledge of procedures to remove non-structural glass, and its associated hardware and attachments

C-14.02 Installs non-structural glass

- select and use tools, equipment, hardware and fasteners
- inspect glass for defects
- insert glass in opening and attach with hardware and fasteners
- verify fit and operation of glass
- install and reprogram components
- demonstrate knowledge of procedures to install non-structural glass, and its associated hardware and attachments

F-23 Prepares refinishing materials

F-23.01 Mixes refinishing materials

- agitate or shake toners
- clean mixing equipment before mixing
- determine required quantity of paint
- place mixing cup and tare (zero) the scale
- select mixing ratio and mixing equipment
- select products, reducers, additives and activators
- pour products, reducers, additives and activators
- mix ready-to-spray product
- strain paint
- demonstrate knowledge of refinishing materials and their applications
- demonstrate knowledge of procedures used to mix refinishing materials

F-23.02 Performs colour adjustments

- select variant
- spray test card
- spray a let-down panel
- visually compare test card against an adjacent polished panel
- adjust colour formula
- adjust spray gun or spraying technique
- seek technical support for challenging and non-existent colour formulas
- demonstrate knowledge of performing colour matching

APPENDIX A: POST HARMONIZATION TRAINING PROFILE CHART

This chart which outlines the finalized model for SATCC technical training sequencing with a cross reference to the Harmonized apprenticeship technical training sequencing, at the topic level.

Implementation for harmonization took place progressively. Level one was implemented in 2020/2021, level two in 2021/2022, level three in 2022/2023, and level four in 2023/2024.

SATCC Level One	Transcript Code	Hours	Pan-Canadian Harmonized Level One
Trade Mathematics	MATH 131	12	**Exceed*
Metal Repair	METL 122 – Theory	20	Communication
			Tools and Equipment
			Welding Equipment (Basic/Introduction)
	METL 123 – Shop	36	Work Organization and Document Use
			Metal Panels and Components (Removes, Repairs and Installs)
Refinishing	PNTG 122 – Theory	24	Surface Preparation
			Repair Materials
			Refinishing Equipment Preparation
			Refinishing Materials (Prepares)
	PNTG 123 – Shop	32	Refinishing Materials (Applies)
			Post-Refinishing Functions
			Exterior Detailing
			Vehicle Cleaning
Vehicle Body Trim Repair	VEHC 122 – Theory	24	Safety-Related Functions
			Trim and Hardware
	VEHC 123 – Shop	32	Plastic and Composite Panels and Components (Removes, Repairs and Installs)
		180	

SATCC Level Two	Transcript Code	Hours	Pan-Canadian Harmonized Level Two
*In Context learning	--	--	*Safety-Related Functions (In-Context)
			*Communication (In-Context)
Welding	WELD 230 – Theory	15	Tools and Equipment
	WELD 231 – Shop	35	Welding Equipment
Vehicle Body Trim Repair	VEHC 222 – Theory	23	Work Organization and Document Use
			Corrosion Protection and Sound Deadening Materials
			Structural and Laminated Glass (Removes, Installs and Repairs)
			Metal Panels and Components (Removes, Repairs and Installs)
	VEHC 123 – Shop	47	Plastic and Composite Panels and Components (Removes, Repairs and Installs)
			Non-Structural Glass (Removes and Installs)
			Interior Components (Repairs and Replaces)
Refinishing	PNTG 222 – Theory	20	Refinishing Equipment Preparation
			Refinishing Materials (Prepares)
	PNTG 223 – Shop	40	Refinishing Materials (Applies)
			Post-Refinishing Functions
		180	

SATCC Level Three	Transcript Code	Hours	Pan-Canadian Harmonized Level Three
*In Context learning	--	--	*Safety-Related Functions (In-Context)
			*Communication (In-Context)
			* Structural and Laminated Glass (Removes, Installs and Repairs) (In-Context)
			* Non-Structural Glass (Removes and Installs) (In-Context)
Refinishing	PNTG 320 – Theory	15	* Refinishing Materials (Prepares)
	PNTG 301 – Shop	45	
Frames	ATBD 320 – Theory	15	Tools and Equipment
			Welding Equipment
			Work Organization and Document Use
	ATBD 321 – Shop	45	Structural Components (Prepares)
			Structural Components (Removes, Repairs and Installs)
Metal Repair	METL 320 – Theory	30	Alternate Fuel Systems (Deactivates and Reactivates)
			Mechanical Components (Removes and Installs)
	METL 321 – Shop	60	Electrical and Electronic Components (Removes, Repairs and Installs)
			Supplemental Restraint Systems (SRS)
			Final Inspections
		210	

SATCC Level Four	Transcript Code	Hours	Pan-Canadian Harmonized Level Three
*In Context learning	--	--	*Safety-Related Functions (In-Context)
Refinishing	PNTG 320 – Theory	15	* Refinishing Materials (Prepares)
	PNTG 301 – Shop	45	Tools and Equipment
			Final Inspections
Wheel Alignment	ATBD 420 – Theory	15	Mentoring
	ATBD 421 – Shop	15	Mechanical Components (Removes and Installs)
Metal Repair	METL 420 – Theory	30	Work Organization and Document Use
			Electrical and Electronic Components (Removes, Repairs and Installs)
			Welding Equipment
	METL 421 – Shop	90	Structural Components (Prepares)
			Structural Components (Removes, Repairs and Installs)
		210	

*Exceed Topics

Throughout this guide to course content there are topics which exceed the minimum scope of work as set out in the Auto Body and Collision Technician RSOS. Industry in Saskatchewan has deemed certain topics to fall within the scope of work of the Auto Body and Collision Technician trade in Saskatchewan and therefore require technical training to cover these topics.