



Recreation Vehicle Service Technician Guide to Course Content

2022

Online: www.saskapprenticeship.ca

Recognition:

To promote transparency and consistency, this document has been adapted from the 2021 Recreation Vehicle Service Technician Red Seal Occupational Standard (Employment and Social Development Canada).

A complete version of the Occupational Standard 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 Recreation Vehicle Service 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 subtrade.

Elements of Harmonization for 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 2022/2023, level two in 2023/2024 and level three in 2024/2025.

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 Recreation Vehicle Service 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 RECREATION VEHICLE SERVICE TECHNICIAN TRADE

“Recreation vehicle service technician” is this trade’s official Red Seal occupational title approved by the CCDA. This standard covers tasks performed by a recreation vehicle service technician.

Recreation vehicle (RV) service technicians work on systems and components of recreation vehicles, including electrical components, plumbing, liquefied petroleum (LP) gas components, appliances, exterior and interior components, structural frames and towing systems. They diagnose, repair, replace, install, adjust, test, maintain and modify these components and systems. They may also perform maintenance and repairs on trailer frames and running gear. They must be knowledgeable about each system’s function and the interaction among them. However, it is important to note that they do not work on the motor or drive train components.

Recreation vehicles serviced in this trade include: class A, B, B+ and C motorhomes, travel trailers, fifth wheel trailers, park model trailers, truck campers and pop-up camping trailers. RV service technicians also work on toy haulers, utility trailers, flat deck trailers, construction living trailers and an assortment of mobile vehicles.

While recreation vehicle service technicians are experienced in all facets of the trade, many may develop specialized skills in areas such as electronics, appliances, hitching systems, and interior and exterior finishing.

Recreation vehicle service technicians are typically employed at RV dealerships, independent RV repair shops, RV manufacturers and may also be self-employed. They may work at indoor shops and outdoors at RV sites. Safety is important due to risks and hazards such as working at heights, with electricity, with explosive and volatile materials, and under vehicles.

Some important attributes include service, mechanical and mathematical skills, manual dexterity, an ability to plan and think sequentially and an ability to work as a team member. Customer relations skills are critical when providing on-site services. Sales skills are required when performing maintenance tasks and assisting customers with making decisions related to repair options.

The functions of recreation vehicle service technicians may overlap with a number of other trades such as parts technician, automotive service technician, construction electrician, plumber, gasfitter, carpenter, floorcovering installer, sheet metal worker, refrigeration and air conditioning mechanic, welder, auto body and collision technician, and appliance service technician.

Experienced recreation vehicle service technicians may advance to supervisory or training positions. They may also move into positions with manufacturers, wholesalers and sales divisions of RV dealerships.

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 1600 hours each year. Total trade time required is 4800 and at least 3 years in the trade.

There are three levels of technical training delivered by the Southern Alberta Institute of Technology (SAIT) Polytechnic in Calgary Alberta.

- Level One: 8 weeks
- Level Two: 8 weeks
- Level Three: 8 weeks

The information contained in this guide to course content details the technical training delivered for each level of apprenticeship. An apprentice spends approximately 15% of their 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 journeyman 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 Level ^❶	Science Credit at Grade Level
Recreation Vehicle Service Technician	Grade 10	Grade 10
<p>^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.).</p> <p>*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.</p> <p>For information about high school curriculum, including Math and Science course names, please see: http://www.curriculum.gov.sk.ca/#</p> <p>Individuals not meeting the entrance requirements will be subject to an assessment and any required training.</p>		

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

Recreation vehicle service technicians read labels on products and decals on equipment for instructions. They read code books, service bulletins, technical update sheets, work orders and recall notices from manufacturers. They also read service memos, warranty information, emails, texts, and notes from customers describing a problem. Recreation vehicle service technicians also read manuals for training purposes for example, when learning how to repair new or unfamiliar systems, or equipment.

DOCUMENT USE

Recreation vehicle service technicians refer to Workplace Hazardous Materials Information System (WHMIS) labels and Safety Data Sheets (SDS) for information on how to handle, dispose of or mix products. They refer to code books, charts, checklists and work schedules. They also refer to these work orders to determine what repairs need to be done. Recreation vehicle service technicians complete work orders, including information about problems encountered, the cause and how the issues were resolved. They also complete time sheets to record or track tasks done from a number of work orders.

Recreation vehicle service technicians may draw or read sketches to clarify steps in a procedure, refer to troubleshooting charts to diagnose a problem, or refer to wiring schematics, assembly diagrams and blueprints when installing equipment. They may also be required to take photos of equipment and service work for record keeping purposes.

WRITING

Recreation vehicle service technicians write notes to themselves, other co-workers and service managers about job details, customer requests, deadlines or supplies. They enter information in work orders to keep a record of tasks done for warranty purposes. They also write the reasons for recommending a particular procedure. They may also write warranty reports.

ORAL COMMUNICATION

Recreation vehicle service technicians call suppliers to obtain information about products. They also talk to other staff to clarify orders, to discuss complex repair problems and to provide explanations of service. They communicate with customers to explain features and to demonstrate proper operation of a system. They also explain and present to them repair options. This communication is done with tact and respect for customers. Recreation vehicle service technicians may also instruct and direct the work and learning of apprentices in the shop.

NUMERACY

Recreation vehicle service technicians measure size and location openings such as for appliances and accessories. They also measure weights, voltage, amperage, resistance and pressures using various tools and equipment such as scales, multimeters and gauges. They develop material lists based on this information. They may also estimate how much time it will take to complete various jobs.

THINKING

Recreation vehicle service technicians use problem solving skills to assess problems with the vehicle and its components. They consider information provided to them by the customer to determine causes of a malfunction. They often depend on their experience, knowledge and observations to diagnose and repair problems as service manuals may not cover all possible issues. They may have to design replacement pieces that are no longer available. They also carry out detailed troubleshooting techniques to deal with unexpected problems or unique difficulties, for example when making customized changes to a recreation vehicle, when diagnosing recurring electrical failures or when locating the source of a leak. They research information using service manuals and online resources, contact manufacturers' technical support lines, or consult with co-workers to help resolve problems.

Recreation vehicle service technicians use decision making skills to decide which tools and supplies to use. They also decide what repair or reconstruction to recommend taking into consideration time, cost and safety.

WORKING WITH OTHERS

Recreation vehicle service technicians work as part of a team which includes other technicians, service managers, salespersons, parts technicians, shop foremen and support staff. However, they usually work independently on the particular unit assigned to them. They coordinate tasks with others as necessary and sometimes work with a partner, for example, when installing awnings and construction repair.

DIGITAL TECHNOLOGY

Recreation vehicle service technicians may use computer applications. For example, they may use handheld diagnostic tools. They may have access to service and repair information through online resources. They may also use point of sale software.

CONTINUOUS LEARNING

Recreation vehicle service technicians learn continuously through hands-on experience with a range of repairs. They learn from co-workers as a first resource. They participate in training courses and access materials provided by manufacturers and suppliers. Recreation vehicle service technicians also consult with their customers who can give the history of their recreation vehicle.

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 Recreation Vehicle Service Technician.

2. Number of Levels of Apprenticeship

The number of levels of technical training recommended for the Recreation Vehicle Service Technician trade is three.

3. Total Training Hours during Apprenticeship Training

The total hours of training, including both on-the-job and in-school training for the Recreation Vehicle Service Technician subtrade is 4800.

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

Implementation for harmonization will take place progressively. Level one to be implemented in 2022/2023, level two in 2023/2024 and level three in 2024/2025. 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 (2022/2023) implementation	Level 2 (2023/2024) implementation	Level 3 (2024/2025) implementation
Safety-Related Activities		
Tools and Equipment		
Common Work Practices and Procedures	Common Work Practices and Procedures	Common Work Practices and Procedures* <small>*For the purpose of work including estimating</small>
Communication Techniques		Mentoring Techniques
Plumbing Systems (Diagnoses)		
Potable Water Systems (Services)		
Waste Water Systems (Services)		
	Electrical Systems (Diagnoses)	Electrical Systems (Diagnoses)
AC Electrical Systems (Operates)	AC Electrical Systems (Services)	AC Electrical Systems (Services)
DC Electrical Systems (Operates)	DC Electrical Systems (Services)	DC Electrical Systems (Services)
		Generators (Services)
	LP Gas Systems (Diagnoses)	
LP Gas Systems (Operates)	LP Gas Systems (Services)	
	Appliances (Diagnoses)	Appliances (Diagnoses)
Water Heaters (Operates)	Water Heaters (Services)	
Furnaces (Operates)	Furnaces (Services)	Furnaces (Services)

Level 1 (2022/2023) implementation)	Level 2 (2023/2024) implementation)	Level 3 (2024/2025) implementation)
Cooktops and Ranges (Operates)	Cooktops and Ranges (Services)	
Refrigerators and Ice Makers (Operates)	Refrigerators and Ice Makers (Services)	Refrigerators and Ice Makers (Services)
Air Conditioners and Heat Pumps (Operates)		Air Conditioners and Heat Pumps (Services)
Consumer Products (Operates)		Consumer Products (Services)
	Interior and Exterior Components (Diagnoses)	
	Interior Components (Services)	
	Exterior Components (Services)	

RECREATION VEHICLE SERVICE TECHNICIAN

TASK MATRIX

This chart outlines the major work activities, tasks and sub-tasks from the 2021 Recreation Vehicle Service 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 will take place progressively. Level one to be implemented in 2022/2023, level two in 2023/2024 and level three in 2024/2025.

A – Performs common occupational skills

Task A-1 Performs safety-related activities	A-1.01 Uses personal protective equipment (PPE) and safety equipment 1	A-1.02 Maintains safe work environment 1	
Task A-2 Uses and maintains tools and equipment	A-2.01 Uses tools and equipment 1	A-2.02 Uses lifting, moving and access equipment 1	
Task A-2 Uses and maintains tools and equipment	A-2.01 Uses tools and equipment 1	A-2.02 Uses lifting, moving and access equipment 1	
Task A-3 Performs common work practices and procedures	A-3.01 Uses documentation 1, 2,3	A-3.02 Identifies recalls and service bulletins 1	A-3.03 Performs pre-delivery inspections (PDI) 1
Task A-4 Uses communication and mentoring techniques	A-4.01 Uses communication techniques 1	A-4.02 Uses mentoring techniques 3	

B – Plumbing systems

Task B-5 Diagnoses plumbing systems	B-5.01 Diagnoses potable water systems 1	B-5.02 Diagnoses waste water systems 1	
Task B-6 Services potable water systems	B-6.01 Maintains potable water systems 1	B-6.02 Repairs potable water systems 1	B-6.03 Installs potable water systems 1
Task B-7 Services waste water systems	B-7.01 Maintains waste water systems 1	B-7.02 Repairs waste water systems 1	B-7.03 Installs waste water systems 1

C – Electrical systems

Task C-8 Diagnoses electrical systems	C-8.01 Diagnoses AC electrical systems 2	C-8.02 Diagnoses DC electrical systems 2	C-8.03 Diagnoses generators 3
Task C-9 Services AC electrical systems	C-9.01 Maintains AC electrical systems 1	C-9.02 Repairs AC electrical systems 2,3	C-9.03 Installs AC electrical systems 1,2,3
Task C-10 Services DC electrical systems	C-10.01 Maintains DC electrical systems 1	C-10.02 Repairs DC electrical systems 1,2,3	C-10.03 Installs DC electrical systems 1,2,3
Task C-11 Services generators	C-11.01 Maintains generators 3	C-11.02 Installs generators 3	

D – Liquefied petroleum (LP) gas systems

Task D-12 Diagnoses LP gas systems	D-12.01 Diagnoses LP gas supply systems (high pressure) 2	D-12.02 Diagnoses LP gas distribution systems (low pressure) 2	
Task D-13 Services LP gas systems	D-13.01 Maintains LP gas systems 1	D-13.02 Repairs LP gas systems 1,2,3	D-13.03 Installs LP gas systems 1,2,3

E – Appliances and consumer products

Task E-14 Diagnoses appliances	E-14.01 Diagnoses water heaters 2	E-14.02 Diagnoses furnaces 2,3	E-14.03 Diagnoses cooktops and ranges 2
	E-14.04 Diagnoses refrigerators and ice makers 2,3	E-14.05 Diagnoses air conditioners and heat pumps 2,3	
Task E-15 Services water heaters	E-15.01 Maintains water heaters 1	E-15.02 Repairs water heaters 2	E-15.03 Installs water heaters 2
Task E-16 Services furnaces	E-16.01 Maintains furnaces 1,2,3	E-16.02 Repairs furnaces 2,3	E-16.03 Installs furnaces 2,3
Task E-17 Services cooktops and ranges	E-17.01 Maintains cooktops and ranges 1,2	E-17.02 Repairs cooktops and ranges 2	E-17.03 Installs cooktops and ranges 2
Task E-18 Services refrigerators and ice makers	E-18.01 Maintains refrigerators and ice makers 1,2,3	E-18.02 Repairs refrigerators and ice makers 2,3	E-18.03 Installs refrigerators and ice makers 2,3

Task E-19 Services air conditioners and heat pumps	E-19.01 Maintains air conditioners and heat pumps 1,3	E-19.02 Repairs air conditioners and heat pumps 3	E-19.03 Installs air conditioners and heat pumps 3
Task E-20 Services consumer products	E-20.01 Replaces consumer products 1,3	E-20.02 Installs consumer products 1,3	

F – Interior and exterior components

Task F-21 Diagnoses interior and exterior components	F-21.01 Diagnoses interior components 2	F-21.02 Diagnoses exterior components 2	
Task F-22 Services interior components	F-22.01 Maintains interior components 2	F-22.02 Repairs interior components 2	F-22.03 Installs interior components 2
Task F-23 Services exterior components	F-23.01 Maintains exterior components 2	F-23.02 Repairs exterior components 2	F-23.03 Installs exterior components 2

G – Frames and mechanical components

Task G-24 Diagnoses frames and mechanical components	G-24.01 Diagnoses frames 1,3	G-24.02 Diagnoses running gear 1,3	G-21.03 Diagnoses levelling systems 1,3
	G-24.04 Diagnoses slide-out systems 1,3	G-24.05 Diagnoses lifting systems 1,3	
Task G-25 Services frames	G-25.01 Maintains frames 1	G-25.02 Repairs frames 3	

Task G-26 Services running gear	G-26.01 Maintains running gear 1	G-26.02 Repairs running gear 1	
Task G-27 Services levelling systems	G-27.01 Maintains levelling systems 1	G-27.02 Repairs levelling systems 3	G-27.03 Installs levelling systems 3
Task G-28 Services slide-out systems	G-28.01 Maintains slide-out systems 1	G-28.02 Repairs slide-out systems 3	
Task G-29 Services lifting systems	G-29.01 Maintains lifting systems 1	G-29.02 Repairs lifting systems 3	

H – Towing systems

Task H-30 Diagnoses towing systems	H-30.01 Diagnoses tow vehicle systems 2	H-30.02 Diagnoses towed vehicle systems 3	
Task H-31 Services tow vehicle systems	H-31.01 Maintains tow vehicle systems 1	H-31.02 Repairs tow vehicle systems 2,3	F-31.03 Installs tow vehicle systems 2,3
Task H-32 Services towed vehicle systems	H-32.01 Maintains towed vehicle systems 1	H-32.02 Repairs towed vehicle systems 3	F-32.03 Installs towed vehicle systems 3

TRAINING PROFILE CHART ALBERTA

At this time, all Saskatchewan's Recreation Vehicle Service Technician apprentices attend technical training in Alberta at Southern Alberta Institute of Technology Polytechnic (SAIT) located in Calgary, AB.

Implementation for harmonization will take place progressively. Level one to be implemented in 2022/2023, level two 2023/2024 and level three in 2024/2025.

This Training Profile Chart represents Alberta Apprenticeship and Industry Training (AIT) technical training at the topic level.

Southern Alberta Institute of Technology (NAIT, SAIT) Polytechnic Level One	Hours
SECTION ONE: STANDARD WORKPLACE SAFETY, INDUSTRY OVERVIEW, REGULATIONS AND ADMINISTRATION	38 hours total
Safety Legislation, Regulations & Industry Policy in the Trades	4
Climbing, Lifting, Rigging and Hoisting	3
Hazardous Materials & Fire Protection	3
Apprenticeship Orientation	2
Tools and Equipment	4
Cleaning Procedures	2
Vehicle Identification Number (VIN) Plates and Labels	2
Cutting and Heating	10
Pre-Delivery Inspection (PDI)	6
Motorhome Controls	2
SECTION TWO: PLUMBING	24 hours total
Potable Water Systems	9
Waste Water Systems	9
Winterizing and De-winterizing	2
Service Monitoring Systems	4
SECTION THREE: LIQUIFIED PETROLEUM (LP) SYSTEMS	44 hours total
Propane Systems	44
SECTION FOUR: DIRECT CURRENT (DC) ELECTRICAL SYSTEMS	48 hours total
DC Electrical System Service	33
Batteries	15
SECTION FIVE: APPLIANCE OPERATION AND ACCESSORIES	44 hours total
Appliance Operation and Replacement	12
Interior Accessories and Safety Components	12
Exterior Accessories	20
SECTION SIX: MECHANICAL AND TOWING SYSTEMS	42 hours total
Tow Vehicle	6
Hitch Systems	12
Brake Systems	12
Undercarriage	12
Level One:	240 hours total

Northern and Southern Alberta Institute of Technology (NAIT, SAIT) Polytechnic Level Two		Hours
SECTION ONE: STANDARD PRACTICES AND PROCEDURES		24 hours total
Work Orders		4
Estimating		10
Warranty and Recall Procedures		2
Parts Catalogues and Related References		4
Customer Relations		4
SECTION TWO: ALTERNATING CURRENT (AC) ELECTRICAL SYSTEMS		54 hours total
AC Electrical System Service		24
Generators		20
Convertors and Charging Systems		10
SECTION THREE: CONSUMER PRODUCTS		24 hours total
Consumer Media Products		24
SECTION FOUR: APPLIANCES		53 hours total
Cooking Equipment		5
Water Heating Systems		13
Heating Systems		35
SECTION FIVE: EXTERIOR STRUCTURES		61 hours total
Exterior Surfaces, Components and Structures		41
Body Panels		15
Camper Tie-Downs and Jacks		5
SECTION SIX: MECHANICAL AND SUSPENSION SYSTEMS		24 hours total
Suspension Aids		16
Lift and Wall Systems		8
Level Two:		240 hours total

Northern and Southern Alberta Institute of Technology (NAIT, SAIT) Polytechnic Level Three		Hours
SECTION ONE: INVERTER AND SOLAR SYSTEMS		30 hours total
Solar Systems		15
Inverter Systems		15
SECTION TWO: APPLIANCES		80 hours total
Air Conditioning and Heat Pumps		20
Refrigerators		35
Appliance Products		10
Electronic Control Systems		15
SECTION THREE: INTERIOR STRUCTURES AND COMPONENTS		30 hours total
Cabinets, Furnishings and Flooring		30
SECTION FOUR: SLIDE OUTS AND LEVELLING SYSTEMS		50 hours total
Hydraulic Systems		15
Slide Out Systems		20
Levelling Systems		15
SECTION FIVE: AUXILIARY FUELING SYSTEMS AND SPECIALTY HAULERS		25 hours total
Auxiliary Fueling Systems		15
Specialty Haulers		10
SECTION SIX: WELDING, COACHING, CERTIFICATION AND COMMITTEES		25 hours total
Gas Metal Arc Welding (GMAW)		15
Workplace Coaching Skills		4
Alberta's Industry Network		2
Interprovincial Standards Red Seal Program		4
Level Three:		240 hours total

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 will take place progressively. Level one to be implemented in 2022/2023, level two 2023/2024 and level three in 2024/2025.

Level One	8 weeks	240 hours
Section One		38 hours total
SAFETY, TOOLS AND SHOP EQUIPMENT		
A safety legislation, regulations and industry policy in the trades		
B climbing, lifting, rigging and hoisting		
C hazardous materials and fire protection		
D apprenticeship orientation		
E tools and equipment		
F cleaning procedures		
G Vehicle Identification Number (VIN) plates and labels		
H cutting and heating		
I pre-delivery inspection (PDI)		
J motorhome controls		
A safety legislation, regulations and industry policy in the trades		4 hours
<ul style="list-style-type: none"> • Demonstrate the application of the Occupational Health and Safety Act, Regulation and Code. • Describe the employer's and employee's role with Occupational Health and Safety (OH&S) regulations, Worksite Hazardous Materials Information Systems (WHMIS), fire regulations, Workers Compensation Board regulations and related advisory bodies and agencies. • Describe industry practices for hazard assessment and control procedures. • Describe the responsibilities of worker and employers to apply emergency procedures. • Describe tradesperson attitudes with respect to housekeeping, personal protective equipment and emergency procedures. • Describe the roles and responsibilities of employers and employees with the selection and use of personal protective equipment (PPE). • Maintain required PPE for tasks. • Use required PPE for tasks. 		
RSOS topics covered in this section of training:		
A-1 Performs safety-related activities		
A-1.01 Uses personal protective equipment (PPE) and safety equipment		
<ul style="list-style-type: none"> • select and wear PPE • locate, select and operate safety equipment • inspect PPE and safety equipment • store PPE and safety equipment • report, tag and remove defective PPE and safety equipment 		

- document work
 - demonstrate knowledge of PPE and safety equipment, their characteristics, applications and operation
 - demonstrate knowledge of procedures to use PPE and safety equipment
- A-1.02 Maintains safe work environment
- verify safety guards on equipment
 - clean up and dispose of hazards
 - store hazardous explosive and chemical items
 - recognize and address safety hazards
 - maintain clean and organized work area
 - locate emergency exits and safety equipment

B climbing, lifting, rigging and hoisting

3 hours

- Describe manual lifting procedures.
- Describe rigging hardware and associated safety factors.
- Select equipment for rigging loads.
- Describe hoisting and load moving procedures.
- Maintain personal protective equipment (PPE) for climbing, lifting and load moving equipment.
- Use PPE for climbing, lifting and load moving equipment.

RSOS topics covered in this section of training:

A-2 Uses and maintains tools and equipment

A-2.02 Uses lifting, moving and access equipment

- select lifting
- select moving equipment
- select access equipment
- determine lifting points
- operate lifting equipment
- operate moving equipment
- assemble and disassemble access equipment
- demonstrate knowledge of lifting equipment, their characteristics, applications and procedures for use
- demonstrate knowledge of moving equipment, their characteristics, applications and procedures for use
- demonstrate knowledge of access equipment, their characteristics, applications and procedures for use
- demonstrate knowledge of licensing requirements to use lifting and moving equipment
- demonstrate knowledge of regulatory requirements to use lifting equipment

C hazardous materials and fire protection

3 hours

- Describe roles, responsibilities, features and practices related to the Workplace Hazardous Materials Information System (WHMIS) program.
- Describe three key elements of WHMIS.
- Describe handling, storing and transporting procedures for hazardous material.
- Describe venting procedures when working with hazardous materials.
- Describe hazards, classes, procedures and equipment related to fire protection.

RSOS topics covered in this section of training:

A-1 Performs safety-related activities

A-1.01 Uses personal protective equipment (PPE) and safety equipment

- select and wear PPE
 - locate, select and operate safety equipment
 - inspect PPE and safety equipment
 - store PPE and safety equipment
 - report, tag and remove defective PPE and safety equipment
 - document work
 - demonstrate knowledge of PPE and safety equipment, their characteristics, applications and operation
 - demonstrate knowledge of procedures to use PPE and safety equipment
- A-1.02 Maintains safe work environment
- verify safety guards on equipment
 - clean up and dispose of hazards
 - store hazardous explosive and chemical items
 - recognize and address safety hazards
 - maintain clean and organized work area
 - locate emergency exits and safety equipment

D apprenticeship orientation

2 hours

- Describe the contractual responsibilities of the apprentice, employer and Alberta Apprenticeship and Industry Training.
- Describe the purpose of the apprentice record book.
- Describe the procedure for changing employers during an active apprenticeship.
- Describe the purpose of the course outline.
- Describe the procedure for progressing through an apprenticeship.
- Describe advancement opportunities in this trade.

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 Recreation Vehicle Service Technician RSOS. Its purpose is to assist in the understanding of an apprentice the steps to earn journeyperson certification.

E tools and equipment

4 hours

- Describe the types and application of tools and equipment.
- Describe the procedures for maintaining tools and equipment.
- Maintain tools and equipment.
- Use tools and equipment

A-2 Uses and maintains tools and equipment

A-2.01 Uses tools and equipment

- recalibrate measuring devices
- clean tools and equipment
- organize and store tools and equipment
- lubricate and add fluids to tools
- identify and report tools to be serviced or replaced
- document work
- demonstrate knowledge of hands tools, characteristics, applications and procedures for use
- demonstrate knowledge of portable power tools, characteristics, applications and procedures for use
- demonstrate knowledge of specialty tools, characteristics, applications and procedures for use
- demonstrate knowledge of stationary power tools, characteristics, applications and procedures for use

- demonstrate knowledge of welding equipment, characteristics, applications and procedures for use
- demonstrate knowledge of measuring devices, characteristics, applications and procedures for use
- demonstrate knowledge of diagnostic tools, characteristics, applications and procedures for use
- demonstrate knowledge of regulatory requirements to maintain safe work environment

F cleaning procedures

2 hours

- Describe methods and products used for spot cleaning recreation vehicles.
- Describe the hazards associated with cleaning products and procedures.

RSOS topics covered in this section of training:

A-3 Performs common work practices and procedures.

A-3.03 Performs pre-delivery inspections (PDI)

- verify vehicle and component operation
- record and report findings
- access and record component serial numbers
- demonstrate knowledge of pre-delivery inspections (PDI)
- demonstrate knowledge of performing pre-delivery inspections

G Vehicle Identification Number (VIN) plates and labels

2 hours

- Describe the types and purpose of labels applicable to recreation vehicles.
- Interpret information on VIN plates and labels

RSOS topics covered in this section of training:

A-3 Performs common work practices and procedures.

A-3.03 Performs pre-delivery inspections (PDI)

- verify vehicle and component operation
- record and report findings
- access and record component serial numbers
- demonstrate knowledge of pre-delivery inspections (PDI)
- demonstrate knowledge of performing pre-delivery inspections

H cutting and heating

10 hours

- Describe cutting and heating operations permitted within the scope of this trade.
- Describe the characteristics and handling of cutting and heating gases.
- Describe the components of cutting and heating equipment.
- Perform a leak check on cutting and heating equipment.
- Describe the procedure for adjusting cutting and heating equipment.
- Demonstrate the procedure for storing and maintaining cutting and heating equipment.
- Perform cutting and heating operations.

RSOS topics covered in this section of training:

A-2 Uses and maintains tools and equipment

A-2.01 Uses tools and equipment

- recalibrate measuring devices
- clean tools and equipment
- organize and store tools and equipment

- lubricate and add fluids to tools
- identify and report tools to be serviced or replaced
- document work
- demonstrate knowledge of hand tools, characteristics, applications and procedures for use
- demonstrate knowledge of portable power tools, characteristics, applications and procedures for use
- demonstrate knowledge of specialty tools, characteristics, applications and procedures for use
- demonstrate knowledge of stationary power tools, characteristics, applications and procedures for use
- demonstrate knowledge of welding equipment, characteristics, applications and procedures for use
- demonstrate knowledge of measuring devices, characteristics, applications and procedures for use
- demonstrate knowledge of diagnostic tools, characteristics, applications and procedures for use
- demonstrate knowledge of regulatory requirements to maintain safe work environment

I pre-delivery inspection (PDI)

6 hours

- Describe the purpose of a PDI.
- Describe PDI procedures.
- Describe the purpose of PDI documentation.
- Describe PDI tasks specific to recreation vehicle designs.
- Perform a PDI

RSOS topics covered in this section of training:

A-3 Performs common work practices and procedures.

A-3.03 Performs pre-delivery inspections (PDI)

- verify vehicle and component operation
- record and report findings
- access and record component serial numbers
- demonstrate knowledge of pre-delivery inspections (PDI)
- demonstrate knowledge of performing pre-delivery inspections

J motorhome controls

2 hours

- Describe the operation of motorhome control systems.
- Describe the purpose of motorhome safety equipment.
- Describe codes, regulations and liabilities relating to motorhomes.
- Describe diesel engine start-up procedures.
- Describe the operation of air brake systems

RSOS topics covered in this section of training:

G-24 Diagnoses frames and mechanical components

G-24.02 Diagnoses running gear

- confirm customer's concern
- select and use tools and equipment
- interpret tire tread wear
- identify worn, loose or broken running gear components
- test brake systems
- check for brake problems
- locate and isolate electrical problems between trailer and tow vehicle
- inspect hydraulic brakes
- determine cause of fault
- determine servicing required

- document work
- demonstrate knowledge of running gear, their characteristics and applications
- demonstrate knowledge of procedures to diagnose running gear

G-24.03 Diagnoses levelling systems

- confirm customer's concern
- select and use tools and equipment
- access and inspect levelling system components
- check hydraulic fluid
- test levelling system
- check electrical source
- inspect wiring connections, gauge and routing
- determine cause of fault
- determine servicing required
- document work
- demonstrate knowledge of levelling systems, their characteristics and applications
- demonstrate knowledge of procedures to diagnose levelling systems

G-24.04 Diagnoses slide-out systems

- confirm customer's concern
- select and use tools and equipment
- check electrical source
- inspect wiring connections, gauge and routing
- test electrical/electronic components for operation
- check mechanical components
- check hydraulic components for leaks
- inspect hydraulic fluid
- check seals and sweeps for faults
- determine cause of fault
- determine servicing required
- document work
- demonstrate knowledge of slide-out systems, their characteristics and applications
- demonstrate knowledge of procedures to diagnose slide-out systems

G-24.05 Diagnoses lifting systems

- confirm customer's concern
- select and use tools and equipment
- check electrical source
- inspect wiring connections, gauge and routing
- test electrical/electronic components for operation
- check mechanical components
- check seals and sweeps for faults
- determine cause of fault
- determine servicing required
- document work
- demonstrate knowledge of lifting systems, their characteristics and applications
- demonstrate knowledge of procedures to diagnose lifting systems

G-26 Services running gear

G-26.01 Diagnoses running gear

- select and use tools and equipment
- check tires and wheels
- adjust and test brakes
- bleed and flush hydraulic trailer brakes
- clean and lubricate moving parts on brake assemblies
- inspect running gear components for wear

- clean and repack bearings, and replace grease seals
- measure drums and rotors for excessive wear
- inspect bushings for movement
- lubricate bushings
- torque wheel nuts and shackle bolts
- document work
- demonstrate knowledge of running gear, their components, characteristics and applications
- demonstrate knowledge of procedures to maintain running gear

G-26.02 Repairs running gear

- select and use tools and equipment
- repair or replace tires
- replace damaged brake parts
- bleed and flush hydraulic trailer brakes
- clean and lubricate brake components
- repack and replace bearings
- replace and lubricate bushings
- adjust brakes
- replace springs
- verify running gear repair
- document work
- demonstrate knowledge of running gear, their components, characteristics and applications
- demonstrate knowledge of procedures to repair running gear

G-27 Services levelling systems

G-27.01 Maintains levelling systems

- select and use tools and equipment
- lubricate levelling system components
- check and fill hydraulic fluids
- verify levelling system operation
- document work
- demonstrate knowledge of levelling systems, their characteristics and applications
- demonstrate knowledge of procedures to maintain levelling systems

G-27.02 Repairs levelling systems

- select and use tools and equipment
- replace or repair electrical wiring and connections
- drain and flush hydraulic fluid reservoirs
- fill hydraulic fluid
- bleed hydraulic lines
- replace and repair levelling system components
- calibrate automatic levelling controls
- repair hydraulic system leaks
- verify repair of levelling system
- document work
- demonstrate knowledge of levelling systems, their characteristics and applications
- demonstrate knowledge of procedures to repair levelling systems

G-27.03 Installs levelling systems

- select and use tools and equipment
- ensure levelling system is compatible with vehicle
- prepare location for levelling system components
- position and secure levelling system components
- route and connect electrical wiring and hydraulic hoses

- verify levelling system operation
- document work
- demonstrate knowledge of levelling systems, their characteristics and applications
- demonstrate knowledge of procedures to install levelling systems and components

G-28 Services slide-out systems

G-28.01 Maintains slide-out systems

- select and use tools and equipment
- check electrical source
- inspect wiring connections, gauge and routing
- verify slide-out system operation
- lubricate mechanical components
- check hydraulic system components
- check, fill and inspect hydraulic fluid level
- check, clean and condition seals and sweeps
- document work
- demonstrate knowledge of slide-out systems, their characteristics and applications
- demonstrate knowledge of procedures to maintain slide-out systems

G-28.02 Repairs slide-out systems

- select and use tools and equipment
- replace and repair electrical wiring and connections
- re-align slide-out system
- lubricate mechanical components
- fill hydraulic fluid
- drain and flush hydraulic fluid reservoirs
- repair hydraulic system leaks
- bleed hydraulic lines
- route and crimp cables
- replace electrical/electronic, mechanical, and hydraulic components
- remove and replace slide-out system
- verify repair of slide-out system
- document work
- demonstrate knowledge of slide-out systems, their characteristics and applications
- demonstrate knowledge of procedures to repair slide-out systems

G-29 Services lifting systems

G-29.01 Maintains lifting systems

- select and use tools and equipment
- check electrical source
- inspect wiring connections, gauge and routing
- verify lifting system operation
- lubricate mechanical components
- check, clean and condition seals and sweeps
- document work
- demonstrate knowledge of lifting systems, their characteristics and applications
- demonstrate knowledge of procedures to maintain lifting systems

G-29.02 Repairs lifting systems

- select and use tools and equipment
- replace and repair electrical wiring and connections
- re-align lifting system



- lubricate mechanical components
- route and crimp cables
- replace electrical/electronic and mechanical components
- verify repair of lifting system
- document work
- demonstrate knowledge of lifting systems, their characteristics and applications
- demonstrate knowledge of procedures to repair lifting system

Section Two

24 hours total

PLUMBING

- A potable water systems
- B waste water systems
- C winterizing and de-winterizing
- D service monitoring systems

A potable water systems

9 hours

- Describe the components and operation of potable water systems.
- Describe the procedure for installing and servicing potable water systems.
- Identify codes for potable water systems.
- Service potable water systems.

RSOS topics covered in this section of training:

B-6 Services potable water systems

B-6.01 Maintains potable water systems

- select and use tools and equipment
- flush system
- remove and replace drinking water filters
- clean potable water system components
- sanitize potable water systems
- winterize and de-winterize potable water systems
- document work
- demonstrate knowledge of potable water systems, their components, characteristics and applications
- demonstrate knowledge of procedures to maintain potable water systems

B-6.02 Repairs potable water systems

- select and use tools and equipment
- access repair area
- repair or replace potable water system components
- perform water leak test
- document work
- demonstrate knowledge of potable water systems, their components, characteristics and applications
- demonstrate knowledge of procedures to repair potable water systems

B-6.03 Installs potable water systems

- select and use tools and equipment
- calculate load, demand and material required
- access installation area
- adjust area
- install potable water system components
- verify potable water system operation
- perform water leak test



- document work
- demonstrate knowledge of potable water systems, their components, characteristics and applications
- demonstrate knowledge of procedures to install potable water systems

B waste water systems

9 hours

- Describe the components and operation of waste water systems.
- Describe the procedure for installing and servicing waste water systems.
- Identify codes for waste water systems.
- Service waste water systems

RSOS topics covered in this section of training:

B-7 Services waste water systems

B-7.01 Maintains waste water systems

- select and use tools and equipment
- clean holding tanks
- lubricate valves
- winterize and de-winterize waste water system
- document work
- demonstrate knowledge of waste water systems, their components, characteristics and applications
- demonstrate knowledge of procedures to maintain waste water systems

B-7.02 Repairs waste water systems

- select and use tools and equipment
- access repair area
- replace defective components
- repair waste water system components
- perform water leak test
- document work
- demonstrate knowledge of waste water systems, their components, characteristics and applications
- demonstrate knowledge of procedures to repair waste water systems

B-7.03 Installs waste water systems

- select and use tools and equipment
- determine installation strategy
- access installation area
- adjust area
- install waste water system components
- verify waste water system operation
- perform water leak test
- document work
- demonstrate knowledge of waste water systems, their components, characteristics and applications
- demonstrate knowledge of procedures to install waste water system components

C winterizing and de-winterizing

2 hours

- Describe the types and applications of plumbing antifreeze.
- Describe winterizing and de-winterizing procedures.

RSOS topics covered in this section of training:

B-6 Services potable water systems

B-6.01 Maintains potable water systems

- select and use tools and equipment

- flush system
 - remove and replace drinking water filters
 - clean potable water system components
 - sanitize potable water systems
 - winterize and de-winterize potable water systems
 - document work
 - demonstrate knowledge of potable water systems, their components, characteristics and applications
 - demonstrate knowledge of procedures to maintain potable water systems
- B-6.02 Repairs potable water systems**
- select and use tools and equipment
 - access repair area
 - repair or replace potable water system components
 - perform water leak test
 - document work
 - demonstrate knowledge of potable water systems, their components, characteristics and applications
 - demonstrate knowledge of procedures to repair potable water systems
- B-6.03 Installs potable water systems**
- select and use tools and equipment
 - calculate load, demand and material required
 - access installation area
 - adjust area
 - install potable water system components
 - verify potable water system operation
 - perform water leak test
 - document work
 - demonstrate knowledge of potable water systems, their components, characteristics and applications
 - demonstrate knowledge of procedures to install potable water systems

B-7 Services waste water systems

- B-7.01 Maintains waste water systems**
- select and use tools and equipment
 - clean holding tanks
 - lubricate valves
 - winterize and de-winterize waste water system
 - document work
 - demonstrate knowledge of waste water systems, their components, characteristics and applications
 - demonstrate knowledge of procedures to maintain waste water systems

D service monitoring systems

4 hours

- Describe the components, principles of operation and owner procedures for monitoring systems.
- Describe servicing of monitor panels and sensors.

RSOS topics covered in this section of training:

C-8 Diagnoses electrical systems

- C-8.02 Diagnoses DC electrical systems**
- confirm customer's concern
 - select and use tools and equipment
 - access DC system components
 - inspect DC system components

- inspect DC system components for damage
- check performance of power sources
- perform checks and tests on battery
- measure source voltage
- check DC system components
- test electrical system
- determine cause of fault
- determine servicing required
- determine operation of vehicle network systems
- document work
- demonstrate knowledge of DC systems, their components, characteristics and applications
- demonstrate knowledge of procedures to diagnose DC systems and their components
- demonstrate knowledge of training and certification requirements to diagnose DC systems and their components
- demonstrate knowledge of regulatory requirements to diagnose DC systems and their components

C-10 Services DC electrical systems

C-10.02 Repairs DC electrical systems

- select and use tools and equipment
- access repair area
- rewire damaged circuits
- modify existing electrical system
- replace or repair defective DC system components
- verify DC power supply and distribution system operation
- replace or repair defective vehicle network systems
- document work
- demonstrate knowledge of DC systems and their components, characteristics and applications
- demonstrate knowledge of procedures to repair DC systems and their components
- demonstrate knowledge of training and certification requirements to repair DC systems and their components
- demonstrate knowledge of regulatory requirements to repair DC systems and their components

Section Three

44 hours total

LIQUIFIED PETROLEUM GAS (LP) SYSTEMS

A propane systems

A propane systems

44 hours

- Describe the properties of propane.
- Describe safety procedures for working with propane.
- Describe the types and applications of propane storage vessels.
- Describe the requirements for inspecting, recertifying and filling propane storage vessels.
- Describe the purpose of propane system components.
- Describe the operation of propane system components.
- Describe the operation of leak detectors.
- Identify codes for propane systems.
- Perform a leak and pressure test.
- Perform operations to make connections in propane systems.
- Adjust a propane regulator.

RSOS topics covered in this section of training:

D-12 Diagnoses LP gas systems

D-12.01 Diagnoses LP gas supply systems (high pressure)

- confirm customer's concern
- select and use tools and equipment
- inspect system and LP gas supply system components
- inspect system and containers
- locate leaks
- perform tests
- determine cause of fault
- determine servicing required
- document work
- demonstrate knowledge of LP gas supply systems (high pressure), their components, characteristics and applications
- demonstrate knowledge of procedures to diagnose LP gas supply systems (high pressure)
- demonstrate knowledge of certification requirements to diagnose LP gas supply systems (high pressure)
- demonstrate knowledge of regulatory requirements to diagnose LP gas supply systems (high pressure)

D-12.02 Diagnoses LP gas distribution systems (low pressure)

- confirm customer's concern
- select and use tools and equipment
- inspect low pressure distribution system
- perform tests
- locate leaks
- determine cause of fault
- determine servicing required
- document work
- demonstrate knowledge of LP gas distribution systems (low pressure), their components, characteristics and applications
- demonstrate knowledge of procedures to diagnose LP gas distribution systems (low pressure)
- demonstrate knowledge of certification requirements to diagnose LP gas distribution systems (low pressure)
- demonstrate knowledge of regulatory requirements to diagnose LP gas distribution systems (low pressure)

D-13 Services LP gas systems

D-13.01 Maintains LP gas systems

- select and use tools and equipment
- check regulator pressure
- adjust regulator
- verify regulator adjustments
- document work
- demonstrate knowledge of LP gas systems, their components, characteristics and applications
- demonstrate knowledge of procedures to maintain LP gas systems
- demonstrate knowledge of certification requirements to maintain LP gas systems
- demonstrate knowledge of regulatory requirements to maintain LP gas systems

D-13.02 Repairs LP gas systems

- select and use tools and equipment
- access repair area
- replace or repair defective LP gas system components
- re-secure cylinders and distribution system
- remove contaminants
- perform drop pressure test and adjust pressure

- verify repair
- document work
- demonstrate knowledge of LP gas systems, their components, characteristics and applications
- demonstrate knowledge of procedures to repair LP gas systems and their components
- demonstrate knowledge of certification requirements to maintain LP gas systems
- demonstrate knowledge of regulatory requirements to maintain LP gas systems

D-13.03 Installs LP gas systems

- select and use tools and equipment
- calculate load, demand and material
- access installation area
- adjust area to accommodate new LP gas system components
- install LP gas system components
- perform tests
- verify operation
- document work
- demonstrate knowledge of LP gas systems their components, characteristics and applications
- demonstrate knowledge of procedures to install LP gas systems and their components
- demonstrate knowledge of certification requirements to maintain LP gas systems
- demonstrate knowledge of regulatory requirements to maintain LP gas systems

Section Four

48 hours total

DIRECT CURRENT (dc) ELECTRICAL SYSTEMS

- A DC electrical systems
- B batteries

A DC electrical systems

33 hours

- Describe electrical principles.
- Describe the function and operation of dc circuits and circuit components.
- Describe the use of schematics in servicing dc electrical systems.
- Construct dc electrical circuits.
- Identify codes for dc electrical systems.
- Service dc components and circuits

RSOS topics covered in this section of training:

C-10 Services DC electrical systems

C-10.01 Maintains DC electrical systems

- select and use tools and equipment
- maintain batteries
- inspect DC system components
- clean and inspect DC system components and connections
- verify DC system component operation
- verify operation of vehicle network systems
- document work
- demonstrate knowledge of DC systems and their components, characteristics and applications
- demonstrate knowledge of procedures to maintain DC systems and their components
- demonstrate knowledge of training and certification requirements to maintain DC systems and their components
- demonstrate knowledge of regulatory requirements to maintain DC systems and their components

C-10.02 Repairs DC electrical systems

- select and use tools and equipment
- access repair area

- rewire damaged circuits
 - modify existing electrical system
 - replace or repair defective DC system components
 - verify DC power supply and distribution system operation
 - replace or repair defective vehicle network systems
 - document work
 - demonstrate knowledge of DC systems and their components, characteristics and applications
 - demonstrate knowledge of procedures to repair DC systems and their components
 - demonstrate knowledge of training and certification requirements to repair DC systems and their components
 - demonstrate knowledge of regulatory requirements to repair DC systems and their components
- C-10.03 Installs DC electrical systems
- select and use tools and equipment
 - calculate load, demand and material required
 - access installation area
 - install DC system components
 - verify DC power supply and distribution system operation
 - document work
 - demonstrate knowledge of DC systems their components, characteristics and applications
 - demonstrate knowledge of procedures to install DC systems and their components
 - demonstrate knowledge of training and certification requirements to install DC systems and their components
 - demonstrate knowledge of regulatory requirements to install DC systems and their components

B batteries

15 hours

- Identify the types and application of batteries.
- Describe the principles of battery operation.
- Describe the procedure for storing and installing batteries.
- Describe the procedure for testing, recharging and boosting batteries.
- Identify the types of battery disconnect devices and systems.

RSOS topics covered in this section of training:

C-10 Services DC electrical systems

C-10.01 Maintains DC electrical systems

- select and use tools and equipment
- maintain batteries
- inspect DC system components
- clean and inspect DC system components and connections
- verify DC system component operation
- verify operation of vehicle network systems
- document work
- demonstrate knowledge of DC systems and their components, characteristics and applications
- demonstrate knowledge of procedures to maintain DC systems and their components
- demonstrate knowledge of training and certification requirements to maintain DC systems and their components
- demonstrate knowledge of regulatory requirements to maintain DC systems and their components

Section Five

44 hours total

APPLIANCES AND ACCESSORIES

- A appliance operation and replacement
- B interior accessories and safety components
- C exterior accessories

A Appliances operation and replacement

12 hours

- Describe the general operation of RV appliances.
- Describe the precautions and procedures for removing and installing RV appliances.

RSOS topics covered in this section of training:

E-14 Diagnoses appliances

E-14.01 Diagnoses water heaters

- confirm customer's concern
- select and use tools and equipment
- measure power and gas supply
- inspect tank and related components
- verify operation of water heater components
- verify by-pass, mixing and check valves
- perform tests
- determine servicing required
- document work
- demonstrate knowledge of water heaters, their components, characteristics and applications
- demonstrate knowledge of procedures to diagnose water heaters
- demonstrate knowledge of certification requirements to diagnose water heaters
- demonstrate knowledge of regulatory requirements to diagnose water heaters

E-14.02 Diagnoses furnaces

- confirm customer's concern
- select and use tools and equipment
- measure power and gas supply
- check air flow at registers
- inspect intake and exhaust venting
- inspect combustion chambers and related components
- verify burner operation
- verify operation of furnace components
- perform tests
- determine servicing required
- document work
- demonstrate knowledge of furnaces, their components, characteristics and applications
- demonstrate knowledge of procedures to diagnose furnaces
- demonstrate knowledge of certification requirements to diagnose furnaces
- demonstrate knowledge of regulatory requirements to diagnose furnaces

E-14.03 Diagnoses cooktops and ranges

- confirm customer's concern
- select and use tools and equipment
- measure power and gas supply
- inspect cooktop and range components
- perform operational test
- test thermostat
- perform tests

- determine servicing required
- document work
- demonstrate knowledge of cooktops and ranges, their components, characteristics and applications
- demonstrate knowledge of procedures to diagnose cooktops and ranges
- demonstrate knowledge of certification requirements to diagnose cooktops and ranges
- demonstrate knowledge of regulatory requirements to diagnose cooktops and ranges

E-14.04 Diagnoses refrigerators and ice makers

- confirm customer's concern
- select and use tools and equipment
- measure power and gas supply
- verify operation of refrigerator and ice maker components
- inspect refrigerator and ice maker components and cooling unit components
- measure temperatures of refrigerator and freezer compartments, and cooling unit components
- identify worn and damaged refrigerator and ice maker components
- check venting and levelling
- inspect door gasket
- by-pass control and circuitry
- perform tests
- determine servicing required
- document work
- demonstrate knowledge of refrigerators and ice makers, their components characteristics and applications
- demonstrate knowledge of procedures to diagnose refrigerators and ice makers
- demonstrate knowledge of certification requirements to diagnose refrigerators and ice makers
- demonstrate knowledge of regulatory requirements to diagnose refrigerators and ice makers

E-14.05 Diagnoses air conditioners and heat pumps

- confirm customer's concern
- select and use tools and equipment
- measure power supply
- verify operation of air conditioner and heat pump components
- inspect air conditioner and heat pump components
- determine servicing required
- document work
- demonstrate knowledge of air conditioners and heat pumps, their components, characteristics and applications
- demonstrate knowledge of procedures to diagnose air conditioners and heat pumps

E-15 Services water heaters

E-15.01 Maintains water heaters

- select and use tools and equipment
- test operation of water heater
- check water supply systems
- perform tests
- check and clean venting and combustion components
- check and adjust air fuel mixture
- clean and test connections of circuit board and components
- flush tank and replace anode rod
- identify worn and damaged water heater components
- document work
- demonstrate knowledge of water heaters, their components, characteristics and applications
- demonstrate knowledge of procedures to maintain water heaters
- demonstrate knowledge of certification requirements to maintain water heaters
- demonstrate knowledge of regulatory requirements to maintain water heaters

E-15.02 Repairs water heaters

- select and use tools and equipment
- disconnect supply systems
- drain water heater
- adjust electrodes
- adjust gas pressure
- adjust air shutter on burner tube
- replace defective water heater or water heater components
- perform tests
- verify repair of water heater
- document work
- demonstrate knowledge of water heaters, their components, characteristics and applications
- demonstrate knowledge of procedures to repair water heaters
- demonstrate knowledge of certification requirements to repair water heaters
- demonstrate knowledge of regulatory requirements to repair water heaters

E-15.03 Installs water heaters

- select and use tools and equipment
- identify and lay out location of installation
- cut out opening
- reinforce structure
- insert, secure and seal water heaters
- connect supply systems
- perform tests
- verify operation
- document work
- demonstrate knowledge of water heaters, their components, characteristics and applications
- demonstrate knowledge of procedures to install water heaters
- demonstrate knowledge of certification requirements to install water heaters
- demonstrate knowledge of regulatory requirements to install water heaters

E-16 Services furnaces

E-16.01 Maintains furnaces

- select and use tools and equipment
- test operation of furnace
- disconnect supply systems
- clean and test furnace components
- identify worn and damaged furnace components
- perform tests
- verify furnace operation
- document work
- demonstrate knowledge of furnaces, their components, characteristics and applications
- demonstrate knowledge of procedures to maintain furnaces and their components
- demonstrate knowledge of certification requirements to maintain furnaces and their components
- demonstrate knowledge of regulatory requirements to maintain furnaces and their components

E-16.02 Repairs furnaces

- select and use tools and equipment
- calibrate thermostat and anticipator
- disconnect supply systems
- disconnect ducting and venting
- add and modify ducting and venting
- adjust electrodes
- adjust gas pressure
- replace defective furnace components

- test operation of furnace
- reinstall furnace
- perform tests
- verify repair of furnace
- document work
- demonstrate knowledge of furnaces, their components, characteristics and applications
- demonstrate knowledge of procedures to repair furnaces
- demonstrate knowledge of certification requirements to repair furnaces
- demonstrate knowledge of regulatory requirements to repair furnaces

E-16.03 Installs furnaces

- select and use tools and equipment
- identify and lay out location of installation
- cut out opening
- reinforce structure
- insert, secure and seal furnaces
- connect supply systems
- install ducting and venting
- perform tests
- verify operation
- document work
- demonstrate knowledge of furnaces, their components, characteristics and applications
- demonstrate knowledge of procedures to install furnaces
- demonstrate knowledge of certification requirements to install furnaces
- demonstrate knowledge of regulatory requirements to install furnaces

E-17 Maintains cooktops and ranges

E-17.01 Maintains cooktops and ranges

- select and use tools and equipment
- measure and calibrate gas pressure
- measure AC and DC power supply
- clean and adjust cooktop and range components
- perform tests
- identify worn and damaged cooktop and range components
- verify range and oven operation
- document work
- demonstrate knowledge of cooktops and ranges, their components, characteristics and applications
- demonstrate knowledge of procedures to maintain cooktops and ranges
- demonstrate knowledge of certification requirements to maintain cooktops and ranges
- demonstrate knowledge of regulatory requirements to maintain cooktops and ranges

E-17.02 Repairs cooktops and ranges

- select and use tools and equipment
- disconnect supply systems
- replace cooktops and ranges, and their components
- calibrate cooktop and range components
- reconnect supply systems
- perform tests
- verify repair
- document work
- demonstrate knowledge of cooktops and ranges, their components, characteristics and applications
- demonstrate knowledge of procedures to repair cooktops and ranges
- demonstrate knowledge of certification requirements to repair cooktops and ranges
- demonstrate knowledge of regulatory requirements to repair cooktops and ranges

E-17.03 Installs cooktops and ranges

- select and use tools and equipment
- identify and lay out location of installation
- cut out opening
- reinforce structure
- insert, secure and seal cooktops and ranges
- connect supply systems
- install ducting and venting
- perform tests
- verify operation
- document work
- demonstrate knowledge of cooktops and ranges, their components, characteristics and applications
- demonstrate knowledge of procedures to install cooktops and ranges
- demonstrate knowledge of certification requirements to install cooktops and ranges
- demonstrate knowledge of regulatory requirements to install cooktops and ranges

E-18 Services refrigerators and ice makers

E-18.01 Maintains refrigerators and ice makers

- select and use tools and equipment
- test operation of refrigerators and ice makers
- turn off and disconnect supply systems
- measure and calibrate gas pressure
- measure AC and DC power supply
- clean and adjust refrigerator and ice maker components
- identify worn and damaged refrigerator and ice maker components
- perform tests
- reinstall refrigerator and ice maker components
- verify refrigerator and ice maker operation
- document work
- demonstrate knowledge of refrigerators and ice makers, their components characteristics and applications
- demonstrate knowledge of procedures to maintain refrigerators and ice makers
- demonstrate knowledge of certification requirements to maintain refrigerators and ice makers
- demonstrate knowledge of regulatory requirements to maintain refrigerators and ice makers

E-18.02 Repairs refrigerators and ice makers

- select and use tools and equipment
- disconnect supply systems
- add and modify venting
- adjust electrodes
- replace refrigerators, ice makers or their defective components
- test operation
- perform tests
- verify repair of refrigerator and ice maker
- document work
- demonstrate knowledge of refrigerators and ice makers, their components characteristics and applications
- demonstrate knowledge of procedures to repair refrigerators and ice makers
- demonstrate knowledge of certification requirements to repair refrigerators and ice makers
- demonstrate knowledge of regulatory requirements to repair refrigerators and ice makers

E-18.03 Installs refrigerators and ice makers

- select and use tools and equipment
- identify and lay out location of installation
- cut out opening

- reinforce structure
- insert, secure and seal refrigerators and ice makers
- connect supply systems
- install venting
- perform tests
- verify operation
- document work
- demonstrate knowledge of refrigerators and ice makers, their components characteristics and applications
- demonstrate knowledge of procedures to repair refrigerators and ice makers
- demonstrate knowledge of certification requirements to repair refrigerators and ice makers
- demonstrate knowledge of regulatory requirements to repair refrigerators and ice makers

E-19 Services air conditioners and heat pumps

E-19.01 Maintains air conditioners and heat pumps

- select and use tools and equipment
- test operation of air conditioners and heat pump systems
- turn off and disconnect supply systems
- clean cooling coils, and condenser and evaporator fins
- clean return air filters
- reconnect and turn on supply systems
- identify worn and damaged air conditioner and heat pump components
- document work
- demonstrate knowledge of air conditioners and heat pumps, their components, characteristics and applications
- demonstrate knowledge of procedures to maintain air conditioners and heat pumps

E-19.02 Repairs air conditioners and heat pumps

- select and use tools and equipment
- disconnect supply systems, and discharge capacitors
- add and modify venting and ducting
- replace air conditioners or their components
- verify repair of air conditioners and heat pumps
- document work
- demonstrate knowledge of air conditioners and heat pumps, their components, characteristics and applications
- demonstrate knowledge of procedures to repair air conditioners and heat pumps

E-19.03 Installs air conditioners and heat pumps

- select and use tools and equipment
- identify and lay out location of installation
- cut out opening
- reinforce structure
- insert, secure and seal air conditioners and heat pumps
- connect supply systems
- install venting and ducting
- install thermostats
- verify operation
- document work
- demonstrate knowledge of air conditioners and heat pumps, their components, characteristics and applications
- demonstrate knowledge of procedures to install air conditioners and heat pumps

B interior accessories and safety components**12 hours**

- Describe the purpose of interior accessories and safety components.
- Describe the operation of interior accessories and safety components.
- Describe the procedure for installing and servicing interior accessories and safety components.

RSOS topics covered in this section of training:**E-20 Services consumer products****E-20.01 Replaces consumer products**

- select and use tools and equipment
- verify supply systems
- replace components
- modify interior and exterior components
- exchange and secure product
- verify operation
- document work
- demonstrate knowledge of consumer products, their characteristics, applications and operation
- demonstrate knowledge of procedures to repair consumer products
- demonstrate knowledge of training and certification requirements to repair consumer products
- demonstrate knowledge of regulatory requirements to repair consumer products

E-20.02 Installs consumer products

- select and use tools and equipment
- identify and lay out location of installation
- cut out opening
- insert, secure and seal consumer products
- connect consumer products
- perform tests
- verify operation of consumer products
- document work
- demonstrate knowledge of consumer products
- demonstrate knowledge of procedures to install consumer products
- demonstrate knowledge of training and certification regulatory requirements to install consumer products
- demonstrate knowledge of regulatory requirements to install consumer products

F-21 Diagnoses interior and exterior components**F-21.01 Diagnoses interior components**

- confirm customer's concern
- select and use tools and equipment
- inspect interior components
- determine cause of fault
- access damaged area
- determine servicing required
- demonstrate knowledge of interior components, their characteristics and applications
- demonstrate knowledge of procedures to diagnose interior components
- demonstrate knowledge of training and certification requirements to diagnose interior components
- demonstrate knowledge of regulatory requirements to diagnose interior components

F-22 Services interior components**F-22.01 Maintains interior components**

- select and use tools and equipment
- adjust hardware, door, trims and upholstery
- lubricate hinges, door slides and locks

- clean interior components
 - identify worn and damaged interior components
 - demonstrate knowledge of interior components, their characteristics and applications
 - demonstrate knowledge of procedures used to maintain interior components
 - demonstrate knowledge of training and certification requirements to maintain interior components
 - demonstrate knowledge of regulatory requirements to maintain interior components
- F-22.02 Repairs interior components
- select and use tools and equipment
 - move, relocate and re-secure items
 - prepare repair area
 - replace soft goods
 - repair wood, plastic, fabric and vinyl surfaces
 - replace interior components
 - demonstrate knowledge of interior components, their characteristics and applications
 - demonstrate knowledge of procedures used to repair interior components
 - demonstrate knowledge of training and certification requirements to repair interior components
 - demonstrate knowledge of regulatory requirements to repair interior components
- F-22.03 Installs interior components
- select and use tools and equipment
 - move, relocate and re-secure items
 - measure, lay out and cut wall panels, ceiling panels and flooring
 - position, level and secure interior components
 - complete finishing appearances
 - demonstrate knowledge of interior components, their characteristics and applications
 - demonstrate knowledge of procedures used to install interior components
 - demonstrate knowledge of training and certification requirements to install interior components
 - demonstrate knowledge of regulatory requirements to install interior components

C exterior accessories

20 hours

- Describe the procedure for installing and servicing awnings.
- Describe the procedure for installing and servicing screen rooms.
- Describe the procedure for installing aftermarket/optional exterior accessories.
- Describe the procedure for installing and servicing back-up alarms and monitoring devices.
- Describe the procedure for installing and servicing steps.

RSOS topics covered in this section of training:

E-20 Services consumer products

E-20.01 Replaces consumer products

- select and use tools and equipment
- verify supply systems
- replace components
- modify interior and exterior components
- exchange and secure product
- verify operation
- document work
- demonstrate knowledge of consumer products, their characteristics, applications and operation
- demonstrate knowledge of procedures to repair consumer products
- demonstrate knowledge of training and certification requirements to repair consumer products
- demonstrate knowledge of regulatory requirements to repair consumer products

E-20.02 Installs consumer products

- select and use tools and equipment
- identify and lay out location of installation
- cut out opening
- insert, secure and seal consumer products
- connect consumer products
- perform tests
- verify operation of consumer products
- document work
- demonstrate knowledge of consumer products
- demonstrate knowledge of procedures to install consumer products
- demonstrate knowledge of training and certification regulatory requirements to install consumer products
- demonstrate knowledge of regulatory requirements to install consumer products

F-21 Diagnoses interior and exterior components

F-21.02 Diagnoses exterior components

- confirm customer's concern
- select and use tools and equipment
- inspect exterior components
- determine cause of fault
- access damaged area
- perform moisture and leak test
- determine servicing required
- demonstrate knowledge of exterior components, their characteristics and applications
- demonstrate knowledge of procedures to diagnose exterior components
- demonstrate knowledge of training and certification requirements to diagnose exterior components

F-23 Services exterior components

F-23.01 Maintains exterior components

- select and use tools and equipment
- clean exterior components by removing contaminants
- lubricate exterior components
- adjust hardware
- verify operation of exterior components
- apply products
- identify worn and damaged exterior components
- demonstrate knowledge of exterior components, their characteristics and applications
- demonstrate knowledge of procedures used to maintain exterior components
- demonstrate knowledge of training and certification requirements to maintain exterior components
- demonstrate knowledge of regulatory requirements to maintain exterior components

F-23.02 Repairs exterior components

- select and use tools and equipment
- access damaged area
- replace joists, studs, rafters, ducting and insulation
- repair damaged area
- replace exterior components
- demonstrate knowledge of exterior components, their characteristics and applications
- demonstrate knowledge of procedures used to repair exterior components
- demonstrate knowledge of training and certification requirements to repair exterior components
- demonstrate knowledge of regulatory requirements to repair exterior components

F-23.03 Installs exterior components

- select and use tools and equipment

- measure, lay out and cut material
- remove and relocate existing components
- position, level and secure exterior components
- apply sealants and finishing products
- install decals and striping
- demonstrate knowledge of exterior components, their characteristics and applications
- demonstrate knowledge of procedures used to install exterior components
- demonstrate knowledge of training and certification requirements to install exterior components
- demonstrate knowledge of regulatory requirements to install exterior components

Section Six

42 hours total

MECHANICAL AND TOWING SYSTEMS

- A tow vehicle
- B hitch systems
- C brake systems
- D undercarriage

A tow vehicle

6 hours

- Describe the requirements and procedure for installing wiring trailer connections on a tow vehicle.
- Describe the operation, application and installation of charging system isolators and relays.

RSOS topics covered in this section of training:

H-30 Diagnoses towing systems

H-30.01 Diagnoses tow vehicle systems

- confirm customer's concern
- select and use tools and equipment
- inspect tow vehicle systems
- identify tow vehicle requirements
- inspect tow vehicle system components
- perform electrical tests to isolate issues
- determine cause of fault
- determine servicing required
- document work
- demonstrate knowledge of tow vehicle systems and their components, characteristics and applications
- demonstrate knowledge of procedures to diagnose tow vehicle systems
- demonstrate knowledge of regulatory requirements to diagnose tow vehicle systems

H-30.02 Diagnoses towed vehicle systems

- confirm customer's concern
- select and use tools and equipment
- inspect towed vehicle systems
- identify towed vehicle capabilities
- inspect towed vehicle system components
- perform electrical tests to isolate issues
- determine cause of fault
- determine servicing required
- document work
- demonstrate knowledge of towed vehicle systems and their components, characteristics and applications
- demonstrate knowledge of procedures to diagnose towed vehicle systems

- demonstrate knowledge of regulatory requirements to diagnose towed vehicle systems

H-31 Services tow vehicle systems

H-31.01 Maintains tow vehicle systems

- select and use tools and equipment
- inspect tow vehicle components for wear, corrosion and lack of lubrication
- lubricate hitching components
- protect electrical components
- check and adjust bolt torque
- verify operation of electrical system
- document work
- demonstrate knowledge of tow vehicle systems and their components, characteristics and applications
- demonstrate knowledge of procedures to maintain tow vehicle systems

H-31.02 Repairs tow vehicle systems

- select and use tools and equipment
- access repair area
- repair and replace tow vehicle system components
- verify tow system operation and setup
- document work
- demonstrate knowledge of tow vehicle systems and their components, characteristics and applications
- demonstrate knowledge of procedures to repair tow vehicle systems

H-31.03 Installs tow vehicle systems

- determine installation strategy
- select and use tools and equipment
- access installation area
- install tow vehicle system components
- verify tow vehicle system operation and setup
- document work
- demonstrate knowledge of tow vehicle systems and their components, characteristics and applications
- demonstrate knowledge of procedures to install tow vehicle systems

H-32 Services towed vehicle systems

H-32.01 Maintains towed vehicle systems

- select and use tools and equipment
- inspect towed vehicle system components for wear, corrosion and lack of lubrication
- lubricate hitching components
- protect electrical components
- verify operation of towed vehicle systems
- document work
- demonstrate knowledge of towed vehicle systems and their components, characteristics and applications
- demonstrate knowledge of procedures to maintain towed vehicle systems

H-32.02 Repairs towed vehicle systems

- select and use tools and equipment
- repair and replace towed vehicle system components
- verify towed vehicle system operation and setup
- document work
- demonstrate knowledge of towed vehicle systems and their components, characteristics and applications
- demonstrate knowledge of procedures to repair towed vehicle systems

H-32.03 Installs towed vehicle systems

- determine installation strategy

- select and use tools and equipment
- install towed vehicle system components
- verify towed vehicle system operation and setup
- document work
- demonstrate knowledge of towed vehicle systems and their components, characteristics and applications
- demonstrate knowledge of procedures to install towed vehicle systems

B hitch systems

12 hours

- Describe the types and application of hitch and tow systems.
- Describe the procedure for installing and adjusting hitch and tow systems.
- Describe the types and application of sway control devices.
- Describe the purpose and requirements for safety chains.
- Describe methods, regulations and applications for dinghy towing.

RSOS topics covered in this section of training:

H-30 Diagnoses towing systems

H-30.01 Diagnoses tow vehicle systems

- confirm customer's concern
- select and use tools and equipment
- inspect tow vehicle systems
- identify tow vehicle requirements
- inspect tow vehicle system components
- perform electrical tests to isolate issues
- determine cause of fault
- determine servicing required
- document work
- demonstrate knowledge of tow vehicle systems and their components, characteristics and applications
- demonstrate knowledge of procedures to diagnose tow vehicle systems
- demonstrate knowledge of regulatory requirements to diagnose tow vehicle systems

H-30.02 Diagnoses towed vehicle systems

- confirm customer's concern
- select and use tools and equipment
- inspect towed vehicle systems
- identify towed vehicle capabilities
- inspect towed vehicle system components
- perform electrical tests to isolate issues
- determine cause of fault
- determine servicing required
- document work
- demonstrate knowledge of towed vehicle systems and their components, characteristics and applications
- demonstrate knowledge of procedures to diagnose towed vehicle systems
- demonstrate knowledge of regulatory requirements to diagnose towed vehicle systems

C brake systems

6 hours

- Describe the components and operation of brake systems.
- Describe the procedure for installing a tow vehicle brake control system.
- Service brake systems and components.

RSOS topics covered in this section of training:

G-24 Diagnoses frames and mechanical components

G-24.02 Diagnoses running gear

- confirm customer's concern
- select and use tools and equipment
- interpret tire tread wear
- identify worn, loose or broken running gear components
- test brake systems
- check for brake problems
- locate and isolate electrical problems between trailer and tow vehicle
- inspect hydraulic brakes
- determine cause of fault
- determine servicing required
- document work
- demonstrate knowledge of running gear, their characteristics and applications
- demonstrate knowledge of procedures to diagnose running gear

G-26 Services running gear

G-26.01 Diagnoses running gear

- select and use tools and equipment
- check tires and wheels
- adjust and test brakes
- bleed and flush hydraulic trailer brakes
- clean and lubricate moving parts on brake assemblies
- inspect running gear components for wear
- clean and repack bearings, and replace grease seals
- measure drums and rotors for excessive wear
- inspect bushings for movement
- lubricate bushings
- torque wheel nuts and shackle bolts
- document work
- demonstrate knowledge of running gear, their components, characteristics and applications
- demonstrate knowledge of procedures to maintain running gear

G-26.02 Repairs running gear

- select and use tools and equipment
- repair or replace tires
- replace damaged brake parts
- bleed and flush hydraulic trailer brakes
- clean and lubricate brake components
- repack and replace bearings
- replace and lubricate bushings
- adjust brakes
- replace springs
- verify running gear repair
- document work
- demonstrate knowledge of running gear, their components, characteristics and applications
- demonstrate knowledge of procedures to repair running gear



D undercarriage

12 hours

- Describe the purpose of undercarriage components.
- Describe the construction of trailer frames.
- Describe axle types, suspension systems and weight ratings.
- Describe the procedure for aligning an axle.
- Describe wheel and tire types and ratings.
- Describe tire wear patterns and causes.
- Describe types of landing gear and trailer tongue jacks.
- Describe the procedure for servicing landing gear and trailer tongue jacks.
- Perform wheel and tire balance.
- Service wheel bearings and seals

RSOS topics covered in this section of training:

G-25 Services Frames

G-25.01 Maintains frames

- select and use tools and equipment
- inspect undercoating
- sand, prep, paint undercoat frame
- inspect frame for deficiencies
- inspect mounting points for frame components
- clean, adjust and lubricate components
- document work
- demonstrate knowledge of frames, their characteristics and applications
- demonstrate knowledge of procedures to maintain frames

G-25.02 Repairs frames

- select and use tools and equipment
- sand, prep, paint and undercoat frame
- remove and reattach frame components
- lubricate frame components
- adjust frame components
- clean frame components
- verify frame components repair
- document work
- demonstrate knowledge of frames, their characteristics and applications
- demonstrate knowledge of procedures to repair frames and their components



Level Two

8 weeks

240 hours

Section One

24 hours total

STANDARD PRACTICES AND PROCEDURES

- A work orders
 - B estimating
 - C warranty and recall procedures
 - D parts catalogs and related references
 - E customer relations
-

A work orders

4 hours

- Describe purpose and types of work orders.
- Describe air supply systems.
- Describe procedure for documenting parts, labour and shop supplies.

RSOS topics covered in this section of training:

A-3 Performs common work practices and procedures

A-3.01 Uses documentation

- interpret technical documents
 - use business documentation
 - interpret symbols, dimensions and specifications
 - perform metric/imperial conversions
 - measure dimensions
 - sketch modifications of repairs and installations
 - document work
 - demonstrate knowledge of technical and business documents, their characteristics and applications
 - demonstrate knowledge of procedures to use and interpret technical and business documents
-

B estimating

10 hours

- Describe the purpose and types of estimates.
- Describe estimating policies and procedures.
- Perform an estimate.

RSOS topics covered in this section of training:

A-3 Performs common work practices and procedures

A-3.01 Uses documentation

- interpret technical documents
 - use business documentation
 - interpret symbols, dimensions and specifications
 - perform metric/imperial conversions
 - measure dimensions
 - sketch modifications of repairs and installations
 - document work
 - demonstrate knowledge of technical and business documents, their characteristics and applications
 - demonstrate knowledge of procedures to use and interpret technical and business documents
-

C warranty and recall procedures

2 hours

- Describe warranty policies and procedures.
- Describe the procedure for processing recalls and service bulletins.

RSOS topics covered in this section of training:

A-3 Performs common work practices and procedures

A-3.01 Uses documentation

- interpret technical documents
- use business documentation
- interpret symbols, dimensions and specifications
- perform metric/imperial conversions
- measure dimensions
- sketch modifications of repairs and installations
- document work
- demonstrate knowledge of technical and business documents, their characteristics and applications
- demonstrate knowledge of procedures to use and interpret technical and business documents

A-3.02 Identifies recalls and service bulletins

- interpret recalls and service bulletins
- verify completion of servicing
- update service records
- document work
- demonstrate knowledge of recalls and service bulletins

D parts catalogues and related references

4 hours

- Describe warranty policies and procedures.
- Describe the procedure for processing recalls and service bulletins.

RSOS topics covered in this section of training:

A-3 Performs common work practices and procedures

A-3.01 Uses documentation

- interpret technical documents
- use business documentation
- interpret symbols, dimensions and specifications
- perform metric/imperial conversions
- measure dimensions
- sketch modifications of repairs and installations
- document work
- demonstrate knowledge of technical and business documents, their characteristics and applications
- demonstrate knowledge of procedures to use and interpret technical and business documents

A-3.02 Identifies recalls and service bulletins

- interpret recalls and service bulletins
- verify completion of servicing
- update service records
- document work
- demonstrate knowledge of recalls and service bulletins

E customer relations

4 hours

- Describe how to provide courtesy to a customer and project a professional image.
- Identify how to address customer needs and expectations.
- Describe expectations for professional conduct during customer communications

RSOS topics covered in this section of training:

A-4 Uses communication and mentoring techniques

A-4.01 Uses communication techniques

- demonstrate communication practices with individuals or in a group
- listen using active listening practices
- speak clearly using correct industry terminology to ensure understanding
- receive and respond to instructions
- receive and respond to feedback on work completed or performed
- explain and provide feedback
- use questions to improve communication
- participate in safety and information meetings
- send and receive electronic messages
- demonstrate knowledge of trade terminology
- demonstrate knowledge of effective communication practices

A-4.02 Uses mentoring techniques

- identify and communicate learning objective and point of lesson
- link lesson to other lessons and project
- demonstrate performance of a skill to an apprentice or learner
- set up conditions required for apprentice or learner to practice a skill
- assess apprentice or learner's ability to perform tasks with increasing independence
- give supportive and corrective feedback
- support apprentices or learners in pursuing technical training opportunities
- support anti-harassment and anti-discrimination practices in workplace
- assess apprentice or learner suitability to trade during probationary period
- demonstrate knowledge of strategies for learning skills in workplace
- demonstrate knowledge of strategies for teaching workplace skills

Section Two

54 hours total

ALTERNATING CURRENT (ac) ELECTRICAL SYSTEMS

- A AC electrical system service
- B generators
- C converters and charging systems

A AC electrical system service

24 hours

- Describe the difference between ac and dc circuits.
- Describe safety precautions used when servicing ac electrical systems.
- Describe the purpose and operation of ac circuit components.
- Describe the purpose and operation of Energy Management Systems.
- Describe codes for ac electrical systems.

RSOS topics covered in this section of training:

C-8 Diagnoses electrical systems

C-8.01 Diagnoses AC electrical systems

- confirm customer's concern
- select and use tools and equipment
- access AC system components to perform tests
- inspect AC system components for damage
- check performance of power sources
- check AC system components
- test electrical system
- determine cause of fault

- determine servicing required
- document work
- demonstrate knowledge of AC systems, and their components, characteristics and applications
- demonstrate knowledge of procedures to diagnose AC systems and their components
- demonstrate knowledge of training and certification requirements to diagnose AC systems and their components
- demonstrate knowledge of regulatory requirements to diagnose AC systems and their components

C-9 Services AC electrical systems

C-9.01 Maintains AC electrical systems

- select and use tools and equipment
- inspect shore power cords
- perform maintenance tests
- clean inverters
- isolate potential problems and determine required actions
- document work
- demonstrate knowledge of AC systems and their components, characteristics and applications
- demonstrate knowledge of procedures to maintain AC systems and their components
- demonstrate knowledge of training and certification requirements to maintain AC systems and their components
- demonstrate knowledge of jurisdictional regulatory requirements to maintain AC systems and their components

C-9.02 Repairs AC electrical systems

- select and use tools and equipment
- access repair area
- replace defective AC system components
- rewire damaged circuits
- modify existing electrical system
- verify AC power supply and distribution system operation
- document work
- demonstrate knowledge of AC systems and their components, characteristics and applications
- demonstrate knowledge of procedures to repair AC systems and their components
- demonstrate knowledge of training and certification requirements to repair AC systems and their components
- demonstrate knowledge of regulatory requirements to repair AC systems and their components

C-9.03 Installs AC electrical systems

- select and use tools and equipment
- calculate load, demand and material required
- access installation area
- install AC system components
- verify AC system component operation
- document work
- demonstrate knowledge of AC systems and their components, characteristics and applications
- demonstrate knowledge of procedures to install AC systems and their components
- demonstrate knowledge of training and certification requirements to install AC systems and their components
- demonstrate knowledge of regulatory requirements to install AC systems and their components

B generators

20 hours

- Describe safety hazards associated with generators.
- Calculate output requirements for generators.
- Describe the procedure for installing generators.
- Describe codes for generator systems.

-
- Describe the procedure for servicing generators.
 - Test generator output.

RSOS topics covered in this section of training:

C-11 Services generators

C-11.01 Maintains generators

- select and use tools and equipment
- check generator components
- change oil and filters
- inspect and test starting system switches and harnesses
- inspect fuel delivery systems
- inspect installation and supporting hardware
- check electrical source
- inspect wiring connections, gauge and routing
- verify generator operation
- document work
- demonstrate knowledge of generators, their components, characteristics and applications
- demonstrate knowledge of procedures to maintain generators
- demonstrate knowledge of training and certification requirements to maintain generators
- demonstrate knowledge of regulatory requirements to maintain generators

C-11.02 Installs generators

- select and use tools and equipment
- prepare location for installation
- position and secure mounting components
- position and secure generator
- route and connect electrical wiring and fuel lines
- ensure exhaust system is installed to allow venting
- verify generator operation
- select and use drawings, diagrams and schematics
- document work
- demonstrate knowledge of generators
- demonstrate knowledge of procedures to install generators
- demonstrate knowledge of training and certification requirements to install generators
- demonstrate knowledge of regulatory requirements to install generators

C converters and charging systems

10 hours

- Describe types of converters and charging systems.
- Describe the operation of converters and charging systems.
- Describe the operation of power centers.
- Describe the procedure for servicing converters, power centers and charging systems.
- Calculate convertor requirements.

RSOS topics covered in this section of training:

C-8 Diagnoses electrical systems

C-8.02 Diagnoses DC electrical systems

- confirm customer's concern
- select and use tools and equipment
- access DC system components
- inspect DC system components
- inspect DC system components for damage
- check performance of power sources
- perform checks and tests on battery

- measure source voltage
- check DC system components
- test electrical system
- determine cause of fault
- determine servicing required
- determine operation of vehicle network systems
- document work
- demonstrate knowledge of DC systems, their components, characteristics and applications
- demonstrate knowledge of procedures to diagnose DC systems and their components
- demonstrate knowledge of training and certification requirements to diagnose DC systems and their components
- demonstrate knowledge of regulatory requirements to diagnose DC systems and their components

C-10 Services DC electrical systems

C-10.02 Repairs DC electrical systems

- select and use tools and equipment
- access repair area
- rewire damaged circuits
- modify existing electrical system
- replace or repair defective DC system components
- verify DC power supply and distribution system operation
- replace or repair defective vehicle network systems
- document work
- demonstrate knowledge of DC systems and their components, characteristics and applications
- demonstrate knowledge of procedures to repair DC systems and their components
- demonstrate knowledge of training and certification requirements to repair DC systems and their components
- demonstrate knowledge of regulatory requirements to repair DC systems and their components

C-10.03 Installs DC electrical systems

- select and use tools and equipment
- calculate load, demand and material required
- access installation area
- install DC system components
- verify DC power supply and distribution system operation
- document work
- demonstrate knowledge of DC systems their components, characteristics and applications
- demonstrate knowledge of procedures to install DC systems and their components
- demonstrate knowledge of training and certification requirements to install DC systems and their components
- demonstrate knowledge of regulatory requirements to install DC systems and their components

Section Three

24 hours total

CONSUMER PRODUCTS

A consumer media products

A consumer media products

24 hours

- Describe the types of consumer media products.
- Describe the general operation and set up procedures for common consumer products.
- Describe the procedure for installing and servicing entertainment systems.

- Describe the procedure for installing and servicing antennae and satellite systems.

RSOS topics covered in this section of training:

E-20 Services consumer products

E-20.01 Replaces consumer products

- select and use tools and equipment
- verify supply systems
- replace components
- modify interior and exterior components
- exchange and secure product
- verify operation
- document work
- demonstrate knowledge of consumer products, their characteristics, applications and operation
- demonstrate knowledge of procedures to repair consumer products
- demonstrate knowledge of training and certification requirements to repair consumer products
- demonstrate knowledge of regulatory requirements to repair consumer products

E-20.02 Installs consumer products

- select and use tools and equipment
- identify and lay out location of installation
- cut out opening
- insert, secure and seal consumer products
- connect consumer products
- perform tests
- verify operation of consumer products
- document work
- demonstrate knowledge of consumer products
- demonstrate knowledge of procedures to install consumer products
- demonstrate knowledge of training and certification regulatory requirements to install consumer products
- demonstrate knowledge of regulatory requirements to install consumer products

Section Four

53 hours total

APPLIANCES

- A cooking equipment
- B water heating systems
- C heating systems

A cooking equipment

5 hours

- Describe the types of cooking equipment.
- Describe the purpose and operation of cooking equipment components.
- Describe codes relating to cooking equipment.
- Describe the procedure for servicing cooking equipment

RSOS topics covered in this section of training:

E-17 Maintains cooktops and ranges

E-17.01 Maintains cooktops and ranges

- select and use tools and equipment
- measure and calibrate gas pressure
- measure AC and DC power supply
- clean and adjust cooktop and range components
- perform tests

- identify worn and damaged cooktop and range components
- verify range and oven operation
- document work
- demonstrate knowledge of cooktops and ranges, their components, characteristics and applications
- demonstrate knowledge of procedures to maintain cooktops and ranges
- demonstrate knowledge of certification requirements to maintain cooktops and ranges
- demonstrate knowledge of regulatory requirements to maintain cooktops and ranges

E-17.02 Repairs cooktops and ranges

- select and use tools and equipment
- disconnect supply systems
- replace cooktops and ranges, and their components
- calibrate cooktop and range components
- reconnect supply systems
- perform tests
- verify repair
- document work
- demonstrate knowledge of cooktops and ranges, their components, characteristics and applications
- demonstrate knowledge of procedures to repair cooktops and ranges
- demonstrate knowledge of certification requirements to repair cooktops and ranges
- demonstrate knowledge of regulatory requirements to repair cooktops and ranges

E-17.03 Installs cooktops and ranges

- select and use tools and equipment
- identify and lay out location of installation
- cut out opening
- reinforce structure
- insert, secure and seal cooktops and ranges
- connect supply systems
- install ducting and venting
- perform tests
- verify operation
- document work
- demonstrate knowledge of cooktops and ranges, their components, characteristics and applications
- demonstrate knowledge of procedures to install cooktops and ranges
- demonstrate knowledge of certification requirements to install cooktops and ranges
- demonstrate knowledge of regulatory requirements to install cooktops and ranges

B water heating systems

13 hours

- Describe the types of water heating systems.
 - Describe the purpose and operation of water heating system components.
 - Describe codes for water heating systems.
 - Service water heating systems
-

RSOS topics covered in this section of training:

E-15 Services water heaters

E-15.01 Maintains water heaters

- select and use tools and equipment
- test operation of water heater
- check water supply systems
- perform tests
- check and clean venting and combustion components
- check and adjust air fuel mixture
- clean and test connections of circuit board and components
- flush tank and replace anode rod
- identify worn and damaged water heater components
- document work
- demonstrate knowledge of water heaters, their components, characteristics and applications
- demonstrate knowledge of procedures to maintain water heaters
- demonstrate knowledge of certification requirements to maintain water heaters
- demonstrate knowledge of regulatory requirements to maintain water heaters

E-15.02 Repairs water heaters

- select and use tools and equipment
- disconnect supply systems
- drain water heater
- adjust electrodes
- adjust gas pressure
- adjust air shutter on burner tube
- replace defective water heater or water heater components
- perform tests
- verify repair of water heater
- document work
- demonstrate knowledge of water heaters, their components, characteristics and applications
- demonstrate knowledge of procedures to repair water heaters
- demonstrate knowledge of certification requirements to repair water heaters
- demonstrate knowledge of regulatory requirements to repair water heaters

E-15.03 Installs water heaters

- select and use tools and equipment
- identify and lay out location of installation
- cut out opening
- reinforce structure
- insert, secure and seal water heaters
- connect supply systems
- perform tests
- verify operation
- document work
- demonstrate knowledge of water heaters, their components, characteristics and applications
- demonstrate knowledge of procedures to install water heaters
- demonstrate knowledge of certification requirements to install water heaters
- demonstrate knowledge of regulatory requirements to install water heaters

C heating systems

35 hours

- Describe the types and operation of heating systems.
- Describe the purpose and operation of heating systems components.
- Describe the types and operation of thermostats and climate controls.
- Describe codes for heating systems.

-
- Describe the procedure for servicing heating systems

RSOS topics covered in this section of training:

E-16 Services furnaces

E-16.01 Maintains furnaces

- select and use tools and equipment
- test operation of furnace
- disconnect supply systems
- clean and test furnace components
- identify worn and damaged furnace components
- perform tests
- verify furnace operation
- document work
- demonstrate knowledge of furnaces, their components, characteristics and applications
- demonstrate knowledge of procedures to maintain furnaces and their components
- demonstrate knowledge of certification requirements to maintain furnaces and their components
- demonstrate knowledge of regulatory requirements to maintain furnaces and their components

E-16.02 Repairs furnaces

- select and use tools and equipment
- calibrate thermostat and anticipator
- disconnect supply systems
- disconnect ducting and venting
- add and modify ducting and venting
- adjust electrodes
- adjust gas pressure
- replace defective furnace components
- test operation of furnace
- reinstall furnace
- perform tests
- verify repair of furnace
- document work
- demonstrate knowledge of furnaces, their components, characteristics and applications
- demonstrate knowledge of procedures to repair furnaces
- demonstrate knowledge of certification requirements to repair furnaces
- demonstrate knowledge of regulatory requirements to repair furnaces

E-16.03 Installs furnaces

- select and use tools and equipment
- identify and lay out location of installation
- cut out opening
- reinforce structure
- insert, secure and seal furnaces
- connect supply systems
- install ducting and venting
- perform tests
- verify operation
- document work
- demonstrate knowledge of furnaces, their components, characteristics and applications
- demonstrate knowledge of procedures to install furnaces
- demonstrate knowledge of certification requirements to install furnaces
- demonstrate knowledge of regulatory requirements to install furnaces

Section Five

61 hours total

EXTERIOR STRUCTURES

- A exterior surfaces, components and structures
- B body panels
- C camper tie-downs and jacks

A exterior surfaces, components and structures

41 hours

- Describe framing and insulating methods, materials and design.
- Describe the types of exterior finishes.
- Describe the procedure for servicing framing.
- Describe the procedure for servicing exterior components.
- Describe the procedure for replacing fiber reinforced plastic (FRP).
- Describe the types of material used in windows.
- Describe the types of roof construction.
- Describe the procedure for servicing roofing systems.
- Describe the procedure for preparing units for cold weather use.
- Describe the design and construction of slide-out rooms.
- Describe the procedure for servicing interior walls, ceiling coverings and panels.
- Identify codes relating to the servicing of exterior structures.
- Replace metal siding.
- Service structural and exterior components

RSOS topics covered in this section of training:

F-23 Services exterior components

F-23.01 Maintains exterior components

- select and use tools and equipment
- clean exterior components by removing contaminants
- lubricate exterior components
- adjust hardware
- verify operation of exterior components
- apply products
- identify worn and damaged exterior components
- demonstrate knowledge of exterior components, their characteristics and applications
- demonstrate knowledge of procedures used to maintain exterior components
- demonstrate knowledge of training and certification requirements to maintain exterior components
- demonstrate knowledge of regulatory requirements to maintain exterior components

F-23.02 Repairs exterior components

- select and use tools and equipment
- access damaged area
- replace joists, studs, rafters, ducting and insulation
- repair damaged area
- replace exterior components
- demonstrate knowledge of exterior components, their characteristics and applications
- demonstrate knowledge of procedures used to repair exterior components
- demonstrate knowledge of training and certification requirements to repair exterior components
- demonstrate knowledge of regulatory requirements to repair exterior components

F-23.03 Installs exterior components

- select and use tools and equipment
- measure, lay out and cut material
- remove and relocate existing components

- position, level and secure exterior components
- apply sealants and finishing products
- install decals and striping
- demonstrate knowledge of exterior components, their characteristics and applications
- demonstrate knowledge of procedures used to install exterior components
- demonstrate knowledge of training and certification requirements to install exterior components
- demonstrate knowledge of regulatory requirements to install exterior components

B body panels

15 hours

- Describe the composition of body panels and components.
- Describe the procedure for servicing FRP, fibre glass panels and components.
- Describe the procedure for servicing plastic components.
- Describe the procedure for installing and replacing decals and graphics.

RSOS topics covered in this section of training:

F-23 Services exterior components

F-23.01 Maintains exterior components

- select and use tools and equipment
- clean exterior components by removing contaminants
- lubricate exterior components
- adjust hardware
- verify operation of exterior components
- apply products
- identify worn and damaged exterior components
- demonstrate knowledge of exterior components, their characteristics and applications
- demonstrate knowledge of procedures used to maintain exterior components
- demonstrate knowledge of training and certification requirements to maintain exterior components
- demonstrate knowledge of regulatory requirements to maintain exterior components

F-23.02 Repairs exterior components

- select and use tools and equipment
- access damaged area
- replace joists, studs, rafters, ducting and insulation
- repair damaged area
- replace exterior components
- demonstrate knowledge of exterior components, their characteristics and applications
- demonstrate knowledge of procedures used to repair exterior components
- demonstrate knowledge of training and certification requirements to repair exterior components
- demonstrate knowledge of regulatory requirements to repair exterior components

F-23.03 Installs exterior components

- select and use tools and equipment
- measure, lay out and cut material
- remove and relocate existing components
- position, level and secure exterior components
- apply sealants and finishing products
- install decals and striping
- demonstrate knowledge of exterior components, their characteristics and applications
- demonstrate knowledge of procedures used to install exterior components
- demonstrate knowledge of training and certification requirements to install exterior components
- demonstrate knowledge of regulatory requirements to install exterior components

C camper tie-down systems and jacks**5 hours**

- Describe the types and capacities of tie down systems.
- Describe the types and capacities of camper jacks.
- Describe the procedure for installing and servicing camper jacks.
- Describe the procedure for installing and servicing tie down systems.

RSOS topics covered in this section of training:**F-23 Services exterior components****F-23.01 Maintains exterior components**

- select and use tools and equipment
- clean exterior components by removing contaminants
- lubricate exterior components
- adjust hardware
- verify operation of exterior components
- apply products
- identify worn and damaged exterior components
- demonstrate knowledge of exterior components, their characteristics and applications
- demonstrate knowledge of procedures used to maintain exterior components
- demonstrate knowledge of training and certification requirements to maintain exterior components
- demonstrate knowledge of regulatory requirements to maintain exterior components

F-23.02 Repairs exterior components

- select and use tools and equipment
- access damaged area
- replace joists, studs, rafters, ducting and insulation
- repair damaged area
- replace exterior components
- demonstrate knowledge of exterior components, their characteristics and applications
- demonstrate knowledge of procedures used to repair exterior components
- demonstrate knowledge of training and certification requirements to repair exterior components
- demonstrate knowledge of regulatory requirements to repair exterior components

F-23.03 Installs exterior components

- select and use tools and equipment
- measure, lay out and cut material
- remove and relocate existing components
- position, level and secure exterior components
- apply sealants and finishing products
- install decals and striping
- demonstrate knowledge of exterior components, their characteristics and applications
- demonstrate knowledge of procedures used to install exterior components
- demonstrate knowledge of training and certification requirements to install exterior components
- demonstrate knowledge of regulatory requirements to install exterior components

Section Six**24 hours total****MECHANICAL AND SUSPENSION SYSTEMS**

A suspension aids

B lift and wall systems

A suspension aids**16 hours**

- Describe trailer frame types and features.
- Describe types of suspension systems.

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- Describe the effect of add-on suspension aids.
 - Describe the effect of vehicle modifications on suspension operation.
 - Describe the procedure for installing suspension aids.
 - Describe the procedure for adjusting suspension aids.
 - Describe the procedure for servicing suspension aids

RSOS topics covered in this section of training:

G-27 Services levelling systems

G-27.01 Maintains levelling systems

- select and use tools and equipment
- lubricate levelling system components
- check and fill hydraulic fluids
- verify levelling system operation
- document work
- demonstrate knowledge of levelling systems, their characteristics and applications
- demonstrate knowledge of procedures to maintain levelling systems

G-27.02 Repairs levelling systems

- select and use tools and equipment
- replace or repair electrical wiring and connections
- drain and flush hydraulic fluid reservoirs
- fill hydraulic fluid
- bleed hydraulic lines
- replace and repair levelling system components
- calibrate automatic levelling controls
- repair hydraulic system leaks
- verify repair of levelling system
- document work
- demonstrate knowledge of levelling systems, their characteristics and applications
- demonstrate knowledge of procedures to repair levelling systems

G-27.03 Installs levelling systems

- select and use tools and equipment
- ensure levelling system is compatible with vehicle
- prepare location for levelling system components
- position and secure levelling system components
- route and connect electrical wiring and hydraulic hoses
- verify levelling system operation
- document work
- demonstrate knowledge of levelling systems, their characteristics and applications
- demonstrate knowledge of procedures to install levelling systems and components

B lift and wall systems

8 hours

- Describe the types of lift systems.
- Describe the operation of lift systems.
- Describe the servicing of lift systems.
- Describe the procedure for servicing wall systems

RSOS topics covered in this section of training:

F-21 Diagnoses interior and exterior components

F-21.02 Diagnoses exterior components

- confirm customer's concern
- select and use tools and equipment
- inspect exterior components

- determine cause of fault
- access damaged area
- perform moisture and leak test
- determine servicing required
- demonstrate knowledge of exterior components, their characteristics and applications
- demonstrate knowledge of procedures to diagnose exterior components
- demonstrate knowledge of training and certification requirements to diagnose exterior components

F-23 Services exterior components

F-23.01 Maintains exterior components

- select and use tools and equipment
- clean exterior components by removing contaminants
- lubricate exterior components
- adjust hardware
- verify operation of exterior components
- apply products
- identify worn and damaged exterior components
- demonstrate knowledge of exterior components, their characteristics and applications
- demonstrate knowledge of procedures used to maintain exterior components
- demonstrate knowledge of training and certification requirements to maintain exterior components
- demonstrate knowledge of regulatory requirements to maintain exterior components

F-23.02 Repairs exterior components

- select and use tools and equipment
- access damaged area
- replace joists, studs, rafters, ducting and insulation
- repair damaged area
- replace exterior components
- demonstrate knowledge of exterior components, their characteristics and applications
- demonstrate knowledge of procedures used to repair exterior components
- demonstrate knowledge of training and certification requirements to repair exterior components
- demonstrate knowledge of regulatory requirements to repair exterior components

F-23.03 Installs exterior components

- select and use tools and equipment
- measure, lay out and cut material
- remove and relocate existing components
- position, level and secure exterior components
- apply sealants and finishing products
- install decals and striping
- demonstrate knowledge of exterior components, their characteristics and applications
- demonstrate knowledge of procedures used to install exterior components
- demonstrate knowledge of training and certification requirements to install exterior components
- demonstrate knowledge of regulatory requirements to install exterior components

Level Three**8 weeks****240 hours**

Section One**30 hours total****INVERTER AND SOLAR PANELS**

- A solar systems
 - B inverter systems
-

A solar systems**15 hours**

- Describe the purpose of solar charging system components.
- Describe the operation and application of solar charging systems.
- Describe the procedure for installing solar charging systems.
- Size a solar charging and battery system to meet customer requirements.
- Describe the procedure for expanding a solar charging system to match higher requirements.
- Describe the procedure for servicing a solar charging system.

RSOS topics covered in this section of training:**C-8 Diagnoses electrical systems****C-8.01 Diagnoses AC electrical systems**

- confirm customer's concern
- select and use tools and equipment
- access AC system components to perform tests
- inspect AC system components for damage
- check performance of power sources
- check AC system components
- test electrical system
- determine cause of fault
- determine servicing required
- document work
- demonstrate knowledge of AC systems, and their components, characteristics and applications
- demonstrate knowledge of procedures to diagnose AC systems and their components
- demonstrate knowledge of training and certification requirements to diagnose AC systems and their components
- demonstrate knowledge of regulatory requirements to diagnose AC systems and their components

C-10 Services DC electrical systems**C-10.01 Maintains DC electrical systems**

- select and use tools and equipment
- maintain batteries
- inspect DC system components
- clean and inspect DC system components and connections
- verify DC system component operation
- verify operation of vehicle network systems
- document work
- demonstrate knowledge of DC systems and their components, characteristics and applications
- demonstrate knowledge of procedures to maintain DC systems and their components
- demonstrate knowledge of training and certification requirements to maintain DC systems and their components
- demonstrate knowledge of regulatory requirements to maintain DC systems and their components

C-10.02 Repairs DC electrical systems

- select and use tools and equipment
- access repair area
- rewire damaged circuits
- modify existing electrical system
- replace or repair defective DC system components
- verify DC power supply and distribution system operation
- replace or repair defective vehicle network systems
- document work
- demonstrate knowledge of DC systems and their components, characteristics and applications
- demonstrate knowledge of procedures to repair DC systems and their components
- demonstrate knowledge of training and certification requirements to repair DC systems and their components
- demonstrate knowledge of regulatory requirements to repair DC systems and their components

B inverter systems

15 hours

- Describe the purpose and operation of an inverter system.
- Describe types of inverters and remote control panels.
- Describe the procedure for installing an inverter system.
- Calculate power draws, battery requirements, cable sizes and load protection devices.
- Describe the procedure for servicing inverter systems

RSOS topics covered in this section of training:

C-8 Diagnoses electrical systems

C-8.01 Diagnoses AC electrical systems

- confirm customer's concern
- select and use tools and equipment
- access AC system components to perform tests
- inspect AC system components for damage
- check performance of power sources
- check AC system components
- test electrical system
- determine cause of fault
- determine servicing required
- document work
- demonstrate knowledge of AC systems, and their components, characteristics and applications
- demonstrate knowledge of procedures to diagnose AC systems and their components
- demonstrate knowledge of training and certification requirements to diagnose AC systems and their components
- demonstrate knowledge of regulatory requirements to diagnose AC systems and their components

C-9 Services AC electrical systems

C-9.01 Maintains AC electrical systems

- select and use tools and equipment
- inspect shore power cords
- perform maintenance tests
- clean inverters
- isolate potential problems and determine required actions
- document work
- demonstrate knowledge of AC systems and their components, characteristics and applications
- demonstrate knowledge of procedures to maintain AC systems and their components

- demonstrate knowledge of training and certification requirements to maintain AC systems and their components
- demonstrate knowledge of jurisdictional regulatory requirements to maintain AC systems and their components

C-9.02 Repairs AC electrical systems

- select and use tools and equipment
- access repair area
- replace defective AC system components
- rewire damaged circuits
- modify existing electrical system
- verify AC power supply and distribution system operation
- document work
- demonstrate knowledge of AC systems and their components, characteristics and applications
- demonstrate knowledge of procedures to repair AC systems and their components
- demonstrate knowledge of training and certification requirements to repair AC systems and their components
- demonstrate knowledge of regulatory requirements to repair AC systems and their components

C-9.03 Installs AC electrical systems

- select and use tools and equipment
- calculate load, demand and material required
- access installation area
- install AC system components
- verify AC system component operation
- document work
- demonstrate knowledge of AC systems and their components, characteristics and applications
- demonstrate knowledge of procedures to install AC systems and their components
- demonstrate knowledge of training and certification requirements to install AC systems and their components
- demonstrate knowledge of regulatory requirements to install AC systems and their components

C-10 Services DC electrical systems

C-10.01 Maintains DC electrical systems

- select and use tools and equipment
- maintain batteries
- inspect DC system components
- clean and inspect DC system components and connections
- verify DC system component operation
- verify operation of vehicle network systems
- document work
- demonstrate knowledge of DC systems and their components, characteristics and applications
- demonstrate knowledge of procedures to maintain DC systems and their components
- demonstrate knowledge of training and certification requirements to maintain DC systems and their components
- demonstrate knowledge of regulatory requirements to maintain DC systems and their components

C-10.02 Repairs DC electrical systems

- select and use tools and equipment
- access repair area
- rewire damaged circuits
- modify existing electrical system
- replace or repair defective DC system components
- verify DC power supply and distribution system operation
- replace or repair defective vehicle network systems
- document work
- demonstrate knowledge of DC systems and their components, characteristics and applications

- demonstrate knowledge of procedures to repair DC systems and their components
- demonstrate knowledge of training and certification requirements to repair DC systems and their components
- demonstrate knowledge of regulatory requirements to repair DC systems and their components

Section Two

80 hours total

APPLIANCES

- A air conditioning and heat pumps
- B refrigerators
- C appliance products
- D electronic control systems

A air conditioning and heat pumps

20 hours

- Describe the types of air conditioners and heat pumps.
- Describe the purpose of air conditioner and heat pump components.
- Describe types and operation of thermostats and climate controls.
- Describe the procedure for servicing air conditioners and heat pump systems.
- Describe the procedure for disposing, reclaiming and recycling refrigerants.
- Describe codes for air conditioners and heat pumps.

RSOS topics covered in this section of training:

E-14 Diagnoses appliances

E-14.05 Diagnoses air conditioners and heat pumps

- confirm customer's concern
- select and use tools and equipment
- measure power supply
- verify operation of air conditioner and heat pump components
- inspect air conditioner and heat pump components
- determine servicing required
- document work
- demonstrate knowledge of air conditioners and heat pumps, their components, characteristics and applications
- demonstrate knowledge of procedures to diagnose air conditioners and heat pumps

E-19 Services air conditioners and heat pumps

E-19.01 Maintains air conditioners and heat pumps

- select and use tools and equipment
- test operation of air conditioners and heat pump systems
- turn off and disconnect supply systems
- clean cooling coils, and condenser and evaporator fins
- clean return air filters
- reconnect and turn on supply systems
- identify worn and damaged air conditioner and heat pump components
- document work
- demonstrate knowledge of air conditioners and heat pumps, their components, characteristics and applications
- demonstrate knowledge of procedures to maintain air conditioners and heat pumps

E-19.02 Repairs air conditioners and heat pumps

- select and use tools and equipment
- disconnect supply systems, and discharge capacitors
- add and modify venting and ducting

- replace air conditioners or their components
 - verify repair of air conditioners and heat pumps
 - document work
 - demonstrate knowledge of air conditioners and heat pumps, their components, characteristics and applications
 - demonstrate knowledge of procedures to repair air conditioners and heat pumps
- E-19.03 Installs air conditioners and heat pumps
- select and use tools and equipment
 - identify and lay out location of installation
 - cut out opening
 - reinforce structure
 - insert, secure and seal air conditioners and heat pumps
 - connect supply systems
 - install venting and ducting
 - install thermostats
 - verify operation
 - document work
 - demonstrate knowledge of air conditioners and heat pumps, their components, characteristics and applications
 - demonstrate knowledge of procedures to install air conditioners and heat pumps

B refrigerators

35 hours

- Describe the types and operation of refrigerators.
- Describe the purpose of refrigerator components.
- Describe the procedure for servicing refrigerators.
- Describe codes related to refrigerators.
- Service refrigerators.

RSOS topics covered in this section of training:

E-18 Services refrigerators and ice makers

E-18.01 Maintains refrigerators and ice makers

- select and use tools and equipment
- test operation of refrigerators and ice makers
- turn off and disconnect supply systems
- measure and calibrate gas pressure
- measure AC and DC power supply
- clean and adjust refrigerator and ice maker components
- identify worn and damaged refrigerator and ice maker components
- perform tests
- reinstall refrigerator and ice maker components
- verify refrigerator and ice maker operation
- document work
- demonstrate knowledge of refrigerators and ice makers, their components characteristics and applications
- demonstrate knowledge of procedures to maintain refrigerators and ice makers
- demonstrate knowledge of certification requirements to maintain refrigerators and ice makers
- demonstrate knowledge of regulatory requirements to maintain refrigerators and ice makers

E-18.02 Repairs refrigerators and ice makers

- select and use tools and equipment
- disconnect supply systems
- add and modify venting
- adjust electrodes

- replace refrigerators, ice makers or their defective components
- test operation
- perform tests
- verify repair of refrigerator and ice maker
- document work
- demonstrate knowledge of refrigerators and ice makers, their components characteristics and applications
- demonstrate knowledge of procedures to repair refrigerators and ice makers
- demonstrate knowledge of certification requirements to repair refrigerators and ice makers
- demonstrate knowledge of regulatory requirements to repair refrigerators and ice makers

E-18.03 Installs refrigerators and ice makers

- select and use tools and equipment
- identify and lay out location of installation
- cut out opening
- reinforce structure
- insert, secure and seal refrigerators and ice makers
- connect supply systems
- install venting
- perform tests
- verify operation
- document work
- demonstrate knowledge of refrigerators and ice makers, their components characteristics and applications
- demonstrate knowledge of procedures to repair refrigerators and ice makers
- demonstrate knowledge of certification requirements to repair refrigerators and ice makers
- demonstrate knowledge of regulatory requirements to repair refrigerators and ice makers

C appliance products

10 hours

- Describe types of appliance and consumer products.
- Describe the procedure for servicing appliances and consumer products.
- Describe the procedure for installing appliance and consumer products.

RSOS topics covered in this section of training:

E-20 Services consumer products

E-20.01 Replaces consumer products

- select and use tools and equipment
- verify supply systems
- replace components
- modify interior and exterior components
- exchange and secure product
- verify operation
- document work
- demonstrate knowledge of consumer products, their characteristics, applications and operation
- demonstrate knowledge of procedures to repair consumer products
- demonstrate knowledge of training and certification requirements to repair consumer products
- demonstrate knowledge of regulatory requirements to repair consumer products

E-20.02 Installs consumer products

- select and use tools and equipment
- identify and lay out location of installation
- cut out opening
- insert, secure and seal consumer products
- connect consumer products
- perform tests

- verify operation of consumer products
- document work
- demonstrate knowledge of consumer products
- demonstrate knowledge of procedures to install consumer products
- demonstrate knowledge of training and certification regulatory requirements to install consumer products
- demonstrate knowledge of regulatory requirements to install consumer products

D electronic control systems

15 hours

- Describe the operation of electronic components.
- Describe precautions required for handling electronics.
- Service the wiring connection to an electronic component.
- Describe common faults in electronic components.
- Test electronic components

RSOS topics covered in this section of training:

C-8 Diagnoses electrical systems

C-8.02 Diagnoses DC electrical systems

- confirm customer's concern
- select and use tools and equipment
- access DC system components
- inspect DC system components
- inspect DC system components for damage
- check performance of power sources
- perform checks and tests on battery
- measure source voltage
- check DC system components
- test electrical system
- determine cause of fault
- determine servicing required
- determine operation of vehicle network systems
- document work
- demonstrate knowledge of DC systems, their components, characteristics and applications
- demonstrate knowledge of procedures to diagnose DC systems and their components
- demonstrate knowledge of training and certification requirements to diagnose DC systems and their components
- demonstrate knowledge of regulatory requirements to diagnose DC systems and their components

C-10 Services DC electrical systems

C-10.02 Repairs DC electrical systems

- select and use tools and equipment
- access repair area
- rewire damaged circuits
- modify existing electrical system
- replace or repair defective DC system components
- verify DC power supply and distribution system operation
- replace or repair defective vehicle network systems
- document work
- demonstrate knowledge of DC systems and their components, characteristics and applications
- demonstrate knowledge of procedures to repair DC systems and their components
- demonstrate knowledge of training and certification requirements to repair DC systems and their components

- demonstrate knowledge of regulatory requirements to repair DC systems and their components
- C-10.03 Installs DC electrical systems
- select and use tools and equipment
 - calculate load, demand and material required
 - access installation area
 - install DC system components
 - verify DC power supply and distribution system operation
 - document work
 - demonstrate knowledge of DC systems their components, characteristics and applications
 - demonstrate knowledge of procedures to install DC systems and their components
 - demonstrate knowledge of training and certification requirements to install DC systems and their components
 - demonstrate knowledge of regulatory requirements to install DC systems and their components

Section Three

30 hours total

INTERIOR STRUCTURES AND COMPONENTS

A cabinets, furnishings and flooring

A cabinets, furnishings and flooring

30 hours

- Describe the types of material used in counter top construction.
- Describe the procedure for servicing countertops.
- Describe the types of materials used in cabinet construction.
- Describe the procedure for servicing cabinet structures.
- Describe the procedure for servicing cabinet trim, doors and hardware.
- Describe the procedure for servicing drawers and hardware.
- Describe the procedure for servicing upholstery components.
- Describe the procedure for servicing window coverings, blinds and valances.
- Describe the procedure for servicing floor coverings.
- Service interior components

RSOS topics covered in this section of training:

F-21 Diagnoses interior and exterior components

F-21.01 Diagnoses interior components

- confirm customer's concern
- select and use tools and equipment
- inspect interior components
- determine cause of fault
- access damaged area
- determine servicing required
- demonstrate knowledge of interior components, their characteristics and applications
- demonstrate knowledge of procedures to diagnose interior components
- demonstrate knowledge of training and certification requirements to diagnose interior components
- demonstrate knowledge of regulatory requirements to diagnose interior components

F-22 Services interior components

F-22.01 Maintains interior components

- select and use tools and equipment
- adjust hardware, door, trims and upholstery
- lubricate hinges, door slides and locks

- clean interior components
 - identify worn and damaged interior components
 - demonstrate knowledge of interior components, their characteristics and applications
 - demonstrate knowledge of procedures used to maintain interior components
 - demonstrate knowledge of training and certification requirements to maintain interior components
 - demonstrate knowledge of regulatory requirements to maintain interior components
- F-22.02 Repairs interior components
- select and use tools and equipment
 - move, relocate and re-secure items
 - prepare repair area
 - replace soft goods
 - repair wood, plastic, fabric and vinyl surfaces
 - replace interior components
 - demonstrate knowledge of interior components, their characteristics and applications
 - demonstrate knowledge of procedures used to repair interior components
 - demonstrate knowledge of training and certification requirements to repair interior components
 - demonstrate knowledge of regulatory requirements to repair interior components
- F-22.03 Installs interior components
- select and use tools and equipment
 - move, relocate and re-secure items
 - measure, lay out and cut wall panels, ceiling panels and flooring
 - position, level and secure interior components
 - complete finishing appearances
 - demonstrate knowledge of interior components, their characteristics and applications
 - demonstrate knowledge of procedures used to install interior components
 - demonstrate knowledge of training and certification requirements to install interior components
 - demonstrate knowledge of regulatory requirements to install interior components

Section Four

50 hours total

SLIDE OUTS AND LEVELLING SYSTEMS

- A hydraulic systems
- B slide out systems
- C levelling systems

A hydraulic systems

15 hours

- Describe the function of hydraulic system components.
- Describe hydraulic system operation, applications and testing.
- Describe the procedure for servicing hydraulic system components.
- Describe the procedure for adjusting hydraulic systems.
- Describe safety procedures relating to hydraulic systems.
- Test a hydraulic system

RSOS topics covered in this section of training:

G-24 Diagnoses frames and mechanical components

G-24.03 Diagnoses levelling systems

- confirm customer's concern
- select and use tools and equipment
- access and inspect levelling system components
- check hydraulic fluid
- test levelling system
- check electrical source

- inspect wiring connections, gauge and routing
- determine cause of fault
- determine servicing required
- document work
- demonstrate knowledge of levelling systems, their characteristics and applications
- demonstrate knowledge of procedures to diagnose levelling systems

G-27 Services levelling systems

G-27.01 Maintains levelling systems

- select and use tools and equipment
- lubricate levelling system components
- check and fill hydraulic fluids
- verify levelling system operation
- document work
- demonstrate knowledge of levelling systems, their characteristics and applications
- demonstrate knowledge of procedures to maintain levelling systems

G-27.02 Repairs levelling systems

- select and use tools and equipment
- replace or repair electrical wiring and connections
- drain and flush hydraulic fluid reservoirs
- fill hydraulic fluid
- bleed hydraulic lines
- replace and repair levelling system components
- calibrate automatic levelling controls
- repair hydraulic system leaks
- verify repair of levelling system
- document work
- demonstrate knowledge of levelling systems, their characteristics and applications
- demonstrate knowledge of procedures to repair levelling systems

G-27.03 Installs levelling systems

- select and use tools and equipment
- ensure levelling system is compatible with vehicle
- prepare location for levelling system components
- position and secure levelling system components
- route and connect electrical wiring and hydraulic hoses
- verify levelling system operation
- document work
- demonstrate knowledge of levelling systems, their characteristics and applications
- demonstrate knowledge of procedures to install levelling systems and components

B slide out systems

20 hours

- Describe the purpose of slide out system components.
- Describe the operation of slide out systems.
- Describe the procedure for servicing slide out systems.
- Describe procedure for adjusting, removing and replacing slide out rooms.

RSOS topics covered in this section of training:

G-28 Services slide-out systems

G-28.01 Maintains slide-out systems

- select and use tools and equipment
- check electrical source
- inspect wiring connections, gauge and routing
- verify slide-out system operation
- lubricate mechanical components

- check hydraulic system components
- check, fill and inspect hydraulic fluid level
- check, clean and condition seals and sweeps
- document work
- demonstrate knowledge of slide-out systems, their characteristics and applications
- demonstrate knowledge of procedures to maintain slide-out systems

G-28.02 Repairs slide-out systems

- select and use tools and equipment
- replace and repair electrical wiring and connections
- re-align slide-out system
- lubricate mechanical components
- fill hydraulic fluid
- drain and flush hydraulic fluid reservoirs
- repair hydraulic system leaks
- bleed hydraulic lines
- route and crimp cables
- replace electrical/electronic, mechanical, and hydraulic components
- remove and replace slide-out system
- verify repair of slide-out system
- document work
- demonstrate knowledge of slide-out systems, their characteristics and applications
- demonstrate knowledge of procedures to repair slide-out systems

C levelling systems

15 hours

- Describe the purpose of levelling systems.
- Describe types of levelling systems.
- Describe the purpose of levelling system components.
- Describe the operation of levelling systems.
- Describe the procedure for installing levelling systems.
- Describe the procedure for servicing levelling systems

RSOS topics covered in this section of training:

G-24 Diagnoses frames and mechanical components

G-24.03 Diagnoses levelling systems

- confirm customer's concern
- select and use tools and equipment
- access and inspect levelling system components
- check hydraulic fluid
- test levelling system
- check electrical source
- inspect wiring connections, gauge and routing
- determine cause of fault
- determine servicing required
- document work
- demonstrate knowledge of levelling systems, their characteristics and applications
- demonstrate knowledge of procedures to diagnose levelling systems

G-27 Services levelling systems

G-27.01 Maintains levelling systems

- select and use tools and equipment
- lubricate levelling system components
- check and fill hydraulic fluids
- verify levelling system operation
- document work

- demonstrate knowledge of levelling systems, their characteristics and applications
 - demonstrate knowledge of procedures to maintain levelling systems
- G-27.02 Repairs levelling systems
- select and use tools and equipment
 - replace or repair electrical wiring and connections
 - drain and flush hydraulic fluid reservoirs
 - fill hydraulic fluid
 - bleed hydraulic lines
 - replace and repair levelling system components
 - calibrate automatic levelling controls
 - repair hydraulic system leaks
 - verify repair of levelling system
 - document work
 - demonstrate knowledge of levelling systems, their characteristics and applications
 - demonstrate knowledge of procedures to repair levelling systems
- G-27.03 Installs levelling systems
- select and use tools and equipment
 - ensure levelling system is compatible with vehicle
 - prepare location for levelling system components
 - position and secure levelling system components
 - route and connect electrical wiring and hydraulic hoses
 - verify levelling system operation
 - document work
 - demonstrate knowledge of levelling systems, their characteristics and applications
 - demonstrate knowledge of procedures to install levelling systems and components

Section Five

25 hours total

AUXILIARY FUELING SYSTEMS AND SPECIALTY HAULERS

- A auxiliary fueling systems
- B specialty haulers

A auxiliary fueling systems

15 hours

- Describe the properties of gasoline and diesel fuel.
- Describe auxiliary fuel system components.
- Describe the procedure for handling fuel.
- Describe the procedure for dispensing fuel.
- Identify codes for auxiliary fuel systems

RSOS topics covered in this section of training:

C-8 Diagnoses electrical systems

C-8.03 Diagnoses generators

- confirm customer's concern
- select and use tools and equipment
- verify generator components
- check filters
- inspect and test starting system switches and harnesses
- inspect fuel delivery systems
- inspect installation and supporting hardware
- verify electrical source
- inspect wiring connections, gauge and routing
- verify generator operation
- check generator windings

- perform tests
- determine cause of fault
- determine servicing required
- document work
- demonstrate knowledge of generators, their **components**, characteristics and operation
- demonstrate knowledge of procedures to diagnose generators
- demonstrate knowledge of training and certification requirements to diagnose generators

C-11 Services generators

C-11.01 Maintains generators

- select and use tools and equipment
- check generator components
- change oil and filters
- inspect and test starting system switches and harnesses
- inspect fuel delivery systems
- inspect installation and supporting hardware
- check electrical source
- inspect wiring connections, gauge and routing
- verify generator operation
- document work
- demonstrate knowledge of generators, their components, characteristics and applications
- demonstrate knowledge of procedures to maintain generators
- demonstrate knowledge of training and certification requirements to maintain generators
- demonstrate knowledge of regulatory requirements to maintain generators

C-11.02 Installs generators

- select and use tools and equipment
- prepare location for installation
- position and secure mounting components
- position and secure generator
- route and connect electrical wiring and fuel lines
- ensure exhaust system is installed to allow venting
- verify generator operation
- select and use drawings, diagrams and schematics
- document work
- demonstrate knowledge of generators
- demonstrate knowledge of procedures to install generators
- demonstrate knowledge of training and certification requirements to install generators
- demonstrate knowledge of regulatory requirements to install generators

D-12 Diagnoses LP gas systems

D-12.01 Diagnoses LP gas supply systems (high pressure)

- confirm customer's concern
- select and use tools and equipment
- inspect system and LP gas supply system components
- inspect system and containers
- locate leaks
- perform tests
- determine cause of fault
- determine servicing required
- document work
- demonstrate knowledge of LP gas supply systems (high pressure), their components, characteristics and applications
- demonstrate knowledge of procedures to diagnose LP gas supply systems (high pressure)
- demonstrate knowledge of certification requirements to diagnose LP gas supply systems (high pressure)

- demonstrate knowledge of regulatory requirements to diagnose LP gas supply systems (high pressure)

D-12.02 Diagnoses LP gas distribution systems (low pressure)

- confirm customer's concern
- select and use tools and equipment
- inspect low pressure distribution system
- perform tests
- locate leaks
- determine cause of fault
- determine servicing required
- document work
- demonstrate knowledge of LP gas distribution systems (low pressure), their components, characteristics and applications
- demonstrate knowledge of procedures to diagnose LP gas distribution systems (low pressure)
- demonstrate knowledge of certification requirements to diagnose LP gas distribution systems (low pressure)
- demonstrate knowledge of regulatory requirements to diagnose LP gas distribution systems (low pressure)

D-13 Services LP gas systems

D-13.01 Maintains LP gas systems

- select and use tools and equipment
- check regulator pressure
- adjust regulator
- verify regulator adjustments
- document work
- demonstrate knowledge of LP gas systems, their components, characteristics and applications
- demonstrate knowledge of procedures to maintain LP gas systems
- demonstrate knowledge of certification requirements to maintain LP gas systems
- demonstrate knowledge of regulatory requirements to maintain LP gas systems

D-13.02 Repairs LP gas systems

- select and use tools and equipment
- access repair area
- replace or repair defective LP gas system components
- re-secure cylinders and distribution system
- remove contaminants
- perform drop pressure test and adjust pressure
- verify repair
- document work
- demonstrate knowledge of LP gas systems, their components, characteristics and applications
- demonstrate knowledge of procedures to repair LP gas systems and their components
- demonstrate knowledge of certification requirements to maintain LP gas systems
- demonstrate knowledge of regulatory requirements to maintain LP gas systems

D-13.03 Installs LP gas systems

- select and use tools and equipment
- calculate load, demand and material
- access installation area
- adjust area to accommodate new LP gas system components
- install LP gas system components
- perform tests
- verify operation
- document work
- demonstrate knowledge of LP gas systems their components, characteristics and applications
- demonstrate knowledge of procedures to install LP gas systems and their components

- demonstrate knowledge of certification requirements to maintain LP gas systems
- demonstrate knowledge of regulatory requirements to maintain LP gas systems

B specialty haulers

10 hours

- Describe the purpose of speciality hauler components.
- Describe the operation of speciality hauler components
- Describe the types of materials used in constructing speciality haulers.
- Describe the design and ventilation requirements.
- Describe codes and safety procedures relating to the servicing of speciality haulers.

RSOS topics covered in this section of training:

This section of training exceeds RSOS scope of work in Level Three and exceeds the minimum sequencing as set out in the Recreation Vehicle Service Technician RSOS. Its purpose is to assist in the understanding of specialty haulers and components.

Section Six

25 hours total

WELDING, COACHING, CERTIFICATION AND COMMITTEES

- A gas metal arc welding (GMAW)
- B workplace coaching skills
- C Alberta's industry network
- D Interprovincial Standards Red Seal Program

A gas metal arc welding (GMAW)

15 hours

- Describe the welding operations permitted within the scope of this trade.
- Describe the function of GMAW components of GMAW equipment.
- Describe the operation of GMAW equipment.
- Describe troubleshooting of GMAW equipment.
- Demonstrate material preparation.
- Perform the sequence of start-up and shut down of GMAW equipment.
- Perform tack welds using GMAW

RSOS topics covered in this section of training:

A-2 Uses and maintains tools and equipment

A-2.01 Uses tools and equipment

- recalibrate measuring devices
- clean tools and equipment
- organize and store tools and equipment
- lubricate and add fluids to tools
- identify and report tools to be serviced or replaced
- document work
- demonstrate knowledge of hands tools, characteristics, applications and procedures for use
- demonstrate knowledge of portable power tools, characteristics, applications and procedures for use
- demonstrate knowledge of specialty tools, characteristics, applications and procedures for use
- demonstrate knowledge of stationary power tools, characteristics, applications and procedures for use
- demonstrate knowledge of welding equipment, characteristics, applications and procedures for use
- demonstrate knowledge of measuring devices, characteristics, applications and procedures for use

- demonstrate knowledge of diagnostic tools, characteristics, applications and procedures for use
- demonstrate knowledge of regulatory requirements to maintain safe work environment

B workplace coaching skills

4 hours

- Describe the process for coaching an apprentice

RSOS topics covered in this section of training:

A-4 Uses communication and mentoring techniques

A-4.02 Uses mentoring techniques

- identify and communicate learning objective and point of lesson
- link lesson to other lessons and project
- demonstrate performance of a skill to an apprentice or learner
- set up conditions required for apprentice or learner to practice a skill
- assess apprentice or learner's ability to perform tasks with increasing independence
- give supportive and corrective feedback
- support apprentices or learners in pursuing technical training opportunities
- support anti-harassment and anti-discrimination practices in workplace
- assess apprentice or learner suitability to trade during probationary period
- demonstrate knowledge of strategies for learning skills in workplace
- demonstrate knowledge of strategies for teaching workplace skills

C Alberta's industry network

2 hours

- Describe Alberta's Apprenticeship and Industry Training system.
- Describe roles and responsibilities of the Alberta Apprenticeship and Industry Training Board, the Government of Alberta and post-secondary institutions.
- Describe roles and responsibilities of the Provincial Apprenticeship Committees (PACs), Local Apprenticeship Committees (LACs) and Occupational Committees (OCs).

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 Recreation Vehicle Service Technician RSOS. Its purpose is to assist in the understanding of Alberta's Apprenticeship and Industry Training system.

D Interprovincial Standards Red Seal Program

4 hours

- Identify Red Seal products used to develop Interprovincial examinations.
- Use Red Seal products to prepare for an Interprovincial examination.

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 Recreation Vehicle Service Technician RSOS. Its purpose is to assist in the understanding of an apprentice the steps to earn journey person certification with understanding of the Red Seal Program.

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 will take place progressively. Level one to be implemented in 2022/2023, level two 2023/2024 and level three in 2024/2025.

This Training Profile Chart represents Alberta Apprenticeship and Industry Training (AIT) technical training at the topic level.

Southern Alberta Institute of Technology (NAIT, SAIT) Polytechnic Level One	Hours
SECTION ONE: STANDARD WORKPLACE SAFETY, INDUSTRY OVERVIEW, REGULATIONS AND ADMINISTRATION	38 hours total
Safety Legislation, Regulations & Industry Policy in the Trades	4
Climbing, Lifting, Rigging and Hoisting	3
Hazardous Materials & Fire Protection	3
Apprenticeship Orientation	2
Tools and Equipment	4
Cleaning Procedures	2
Vehicle Identification Number (VIN) Plates and Labels	2
Cutting and Heating	10
Pre-Delivery Inspection (PDI)	6
Motorhome Controls	2
SECTION TWO: PLUMBING	24 hours total
Potable Water Systems	9
Waste Water Systems	9
Winterizing and De-winterizing	2
Service Monitoring Systems	4
SECTION THREE: LIQUIFIED PETROLEUM (LP) SYSTEMS	44 hours total
Propane Systems	44
SECTION FOUR: DIRECT CURRENT (DC) ELECTRICAL SYSTEMS	48 hours total
DC Electrical System Service	33
Batteries	15
SECTION FIVE: APPLIANCE OPERATION AND ACCESSORIES	44 hours total
Appliance Operation and Replacement	12
Interior Accessories and Safety Components	12
Exterior Accessories	20
SECTION SIX: MECHANICAL AND TOWING SYSTEMS	42 hours total
Tow Vehicle	6
Hitch Systems	12
Brake Systems	12
Undercarriage	12
Level One:	240 hours total

Northern and Southern Alberta Institute of Technology (NAIT, SAIT) Polytechnic Level Two		Hours
SECTION ONE: STANDARD PRACTICES AND PROCEDURES		24 hours total
Work Orders		4
Estimating		10
Warranty and Recall Procedures		2
Parts Catalogues and Related References		4
Customer Relations		4
SECTION TWO: ALTERNATING CURRENT (AC) ELECTRICAL SYSTEMS		54 hours total
AC Electrical System Service		24
Generators		20
Convertors and Charging Systems		10
SECTION THREE: CONSUMER PRODUCTS		24 hours total
Consumer Media Products		24
SECTION FOUR: APPLIANCES		53 hours total
Cooking Equipment		5
Water Heating Systems		13
Heating Systems		35
SECTION FIVE: EXTERIOR STRUCTURES		61 hours total
Exterior Surfaces, Components and Structures		41
Body Panels		15
Camper Tie-Downs and Jacks		5
SECTION SIX: MECHANICAL AND SUSPENSION SYSTEMS		24 hours total
Suspension Aids		16
Lift and Wall Systems		8
Level Two:		240 hours total

Northern and Southern Alberta Institute of Technology (NAIT, SAIT) Polytechnic Level Three		Hours
SECTION ONE: INVERTER AND SOLAR SYSTEMS		30 hours total
Solar Systems		15
Inverter Systems		15
SECTION TWO: APPLIANCES		80 hours total
Air Conditioning and Heat Pumps		20
Refrigerators		35
Appliance Products		10
Electronic Control Systems		15
SECTION THREE: INTERIOR STRUCTURES AND COMPONENTS		30 hours total
Cabinets, Furnishings and Flooring		30
SECTION FOUR: SLIDE OUTS AND LEVELLING SYSTEMS		50 hours total
Hydraulic Systems		15
Slide Out Systems		20
Levelling Systems		15
SECTION FIVE: AUXILIARY FUELING SYSTEMS AND SPECIALTY HAULERS		25 hours total
Auxiliary Fueling Systems		15
*Specialty Haulers		10
SECTION SIX: WELDING, COACHING, CERTIFICATION AND COMMITTEES		25 hours total
Gas Metal Arc Welding (GMAW)		15
Workplace Coaching Skills		4
*Alberta's Industry Network		2
Interprovincial Standards Red Seal Program		4
Level Three:		240 hours total

*Exceed Topics

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