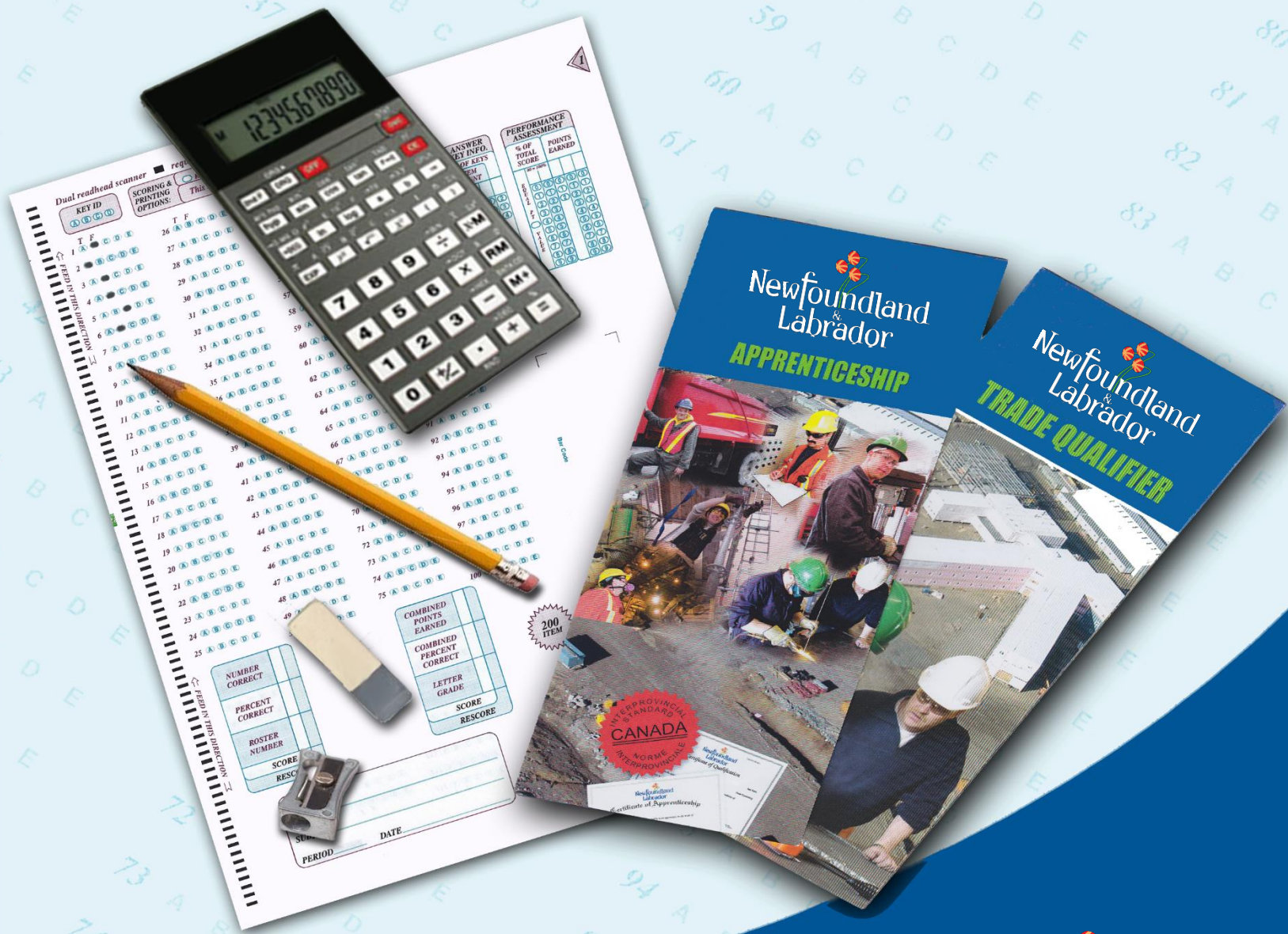


APPRENTICESHIP & CERTIFICATION

Study Guide Automotive Service Technician



Apprenticeship and Certification

Study Guide

Automotive Service Technician

(Based on Red Seal Occupational Standard – RSOS 2016)

Government of Newfoundland and Labrador
Department of Immigration, Population Growth and Skills

Version 10

**REVISED
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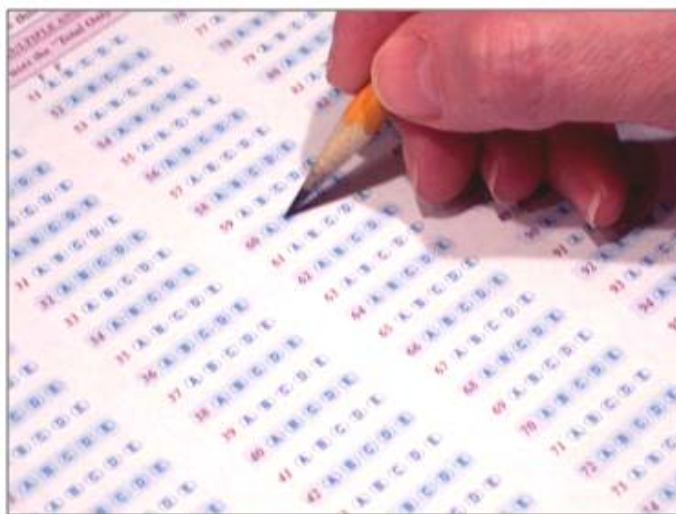
Introduction

This Study Guide has been developed by the Newfoundland and Labrador Department of Immigration, Population Growth and Skills, Apprenticeship and Trades Certification Division, to assist apprentices and trade qualifiers as they prepare to write the Inter-provincial (IP) Red Seal Exam. IP Exams are available for all Red Seal trades. For a list of Inter-provincial trades please refer to the Department of Immigration, Population Growth and Skills website: <https://www.gov.nl.ca/atcd/designated-trades/list-of-designated-trades/>

Some of the specific goals of this guide are:

- ⇒ to help you understand the skills and knowledge that might be covered on the exam
- ⇒ to help you identify your strengths and weaknesses
- ⇒ to provide organization and structure for a course of study
- ⇒ to provide a list of resources to help you with your study plan
- ⇒ to support and supplement the teaching and learning process

This study guide outlines the theoretical portion of the program. The intent is not to replace technical training provided under the guidance of instructors. Rather, it is a tool to be used in conjunction with formal training.



Exam Process

Before the Exam

You must contact the nearest Apprenticeship and Trades Certification Divisional office to make request to write the IP Red Seal exam (*See Appendix A for a list of regional offices*). Upon approval, the Apprenticeship Program Officer (APO) will notify you of your eligibility to write the exam, and provide you with scheduling information. If you require special accommodations due to a disability or language barrier, please contact your regional office for information on applying for this service.

During the Exam

You must bring:

- personal identification such as a photo or signature ID or valid Newfoundland and Labrador driver's license
- your notification letter

The following will be provided:

- a calculator (*see Appendix B for calculator information*)
- all other items required such as pencils, scrap paper, etc.

Important Note:

Personal cell phones, calculators, or other electronic equipment are NOT allowed into the exam room. If you do bring them, they will be stored away and returned to you when you have completed the exam.

After the Exam

Results will be mailed to you approximately seven to ten days after completion of the exam. All necessary instructions and information will be provided in the results letter.

The percentage mark you obtained will be provided. You will also be given a section by section breakdown, showing how many questions were in each section, as well as the number of questions in each section you completed successfully.

If you are successful in obtaining a 70% or more on your exam, you will be issued a Newfoundland and Labrador Certificate of Qualification with a Red Seal endorsement.

Exam Format

All IP Red Seal exams are written in multiple-choice format. Each exam has between 100 and 150 questions. A multiple choice question consists of a stem (a complete question) followed by four options (A, B, C, D). The stem contains all the information necessary to answer the question. The options consist of the one correct answer and three “distracters.” Distracters are incorrect. (See *Appendix C for a sample answer sheet*).

IP Red Seal exams contain three types of questions:

Level 1 Knowledge and Recall

Questions at this level test your ability to recall and understand definitions, facts, and principles.

Level 2 Procedural and Application

Questions at this level test your ability to apply your knowledge of procedures to a new situation.

Level 3 Critical Thinking

Questions at this level test your ability to interpret data, solve problems and arrive at valid conclusions.

Level 1 Examples:

1. Where are the bleeder valves (if used) located in the cooling system?

- A. In the heater hoses.
- B. Near the high points of the system.
- C. On the radiator side of the thermostat.
- D. At the lowest point of the system.



2. What position is the heater control valve in when the air conditioning is on and the panel controls are in the “max air” setting?

- A. Fully open.
- B. Almost closed.
- C. About 50% open.
- D. Fully closed.



3. What is the purpose of the condenser?

- A. Allows outside air to heat the refrigerant.
- B. Acts as a refrigerant reservoir.
- C. Changes the refrigerant vapor into a liquid.
- D. Changes the refrigerant liquid into a vapor.



Level 2 Examples:

1. What is the procedure for preparing an engine hoist to lift an engine?

- A. Draw the legs on the hoist in, and then extend the lift arm to access the engine.
- B. Extend the legs as far as possible, and then pull the lifting arm in for stability.
- C. Adjust the leg length and then adjust the lift beam length to lift the engine.
- D. Adjust the engine hoist to carry the engine as low as possible, and then lift the engine.



2. What steps are to be taken if a technician shows symptoms of carbon monoxide poisoning after working in a closed shop all day?

- A. Evacuate the technician to fresh air and then check the cold air return on the shop heater.
- B. Evacuate the technician to fresh air and then check the exhaust system including the makeup air unit.
- C. Keep the technician warm and then contact a doctor.
- D. Test the oxygen level in the shop and then test the carbon monoxide level.



3 What is the procedure for road testing a vehicle for steering, suspension or braking concerns?

- A. Test drive the vehicle by driving it normally on errands, and then perform some hard turns in a parking lot.
- B. Try to drive in the same fashion as the owner, and then start and stop aggressively to make any problems more apparent.
- C. Drive the vehicle long enough to get to full operating temperature, and then observe the handling and braking characteristics.
- D. Test the brakes and handling at low speeds, and then road test on several different surfaces while trying to recreate the condition.



Level 3 Examples:

1. Testing an engine coolant temperature sensor shows 100 000 ohms resistance at -40°C (-40°F) and 70 ohms at 130° (266°F). What does this indicate?

- A. The sensor is functioning normally with its design limits.
- B. The sensor circuit is shorted in the powertrain control module.
- C. The sensor is shorted when hot, bypassing all controls.
- D. The engine coolant temperature sensor has a ground fault.



2. A customer reports coolant is being lost. Coolant was recently added to a hot engine. The customer now notices white smoke from the exhaust when the engine is loaded. During a cooling system pressure test, the pressure drops slowly but no external leaks are seen. What is the problem?
- A. The intake manifold is leaking into the crankcase.
 - B. The cylinder head gasket is leaking, pressurizing the cooling system.
 - C. The transmission cooler is leaking coolant into the transmission.
 - D. The cylinder head has cracked, leaking coolant into the combustion chamber.



3. An engine is described as being “sluggish”. The vacuum reading at idle is 17 inches Hg (57 kPa). On a snap throttle test the vacuum drops to 8 inches Hg (27 kPa) then rebounds to 18 inches Hg (61 kPa). The vacuum reading drops off slowly when the engine is held at 2500 rpm. What do these results indicate?
- A. A stretched timing chain.
 - B. A burned exhaust valve.
 - C. A restricted exhaust system.
 - D. A rich fuel/air mixture.



Source of questions:

<http://www.red-seal.ca/s.1mpl.2.2x.1mQ.5.2st.3.4ns-eng.html?tid=23>

Exam Content

Understanding the *Red Seal Occupational Standard (RSOS)*

The Red Seal model has historically been based on the development of the National Occupational Analysis (NOA) which supports the development of multiple-choice format examinations.

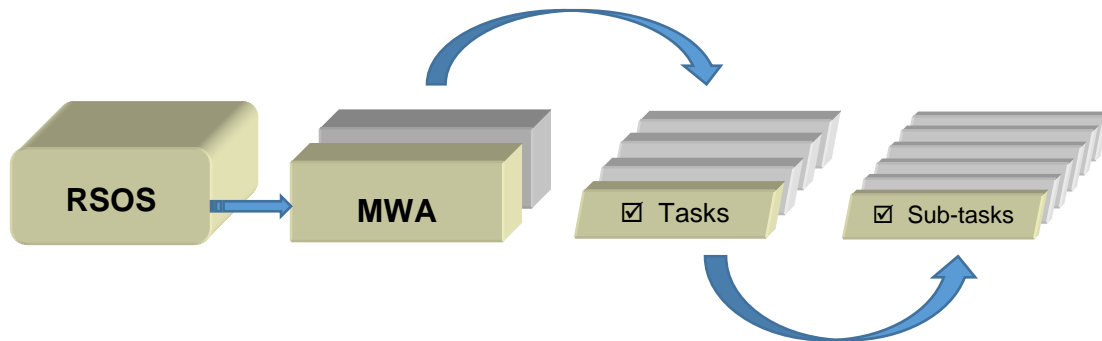
The RSOS was introduced in 2015 and is now taking the place of the NOA. Each RSOS or NOA sets the standard for a Red Seal trade. The Red Seal Inter-provincial Examination is based on the Red Seal Standard.

The new standards provide greater consistency in learning resources and allow for increased industry involvement in the development of these standards. This new model places increases emphasis on apprenticeship training and assessing skills with industry learning objectives, outcomes and performance criteria.

The RSOS for each trade describes the tasks and sub-tasks; skills and knowledge requirements; summary of essential skills; safety information; trends affecting the trade; technical terms; names of tools and equipment; acronyms; learning objectives and outcomes; industry expected performance and essential skills related to each sub-task.

The RSOS is an excellent tool to use as you study for the Red Seal exam. RSOSs can be found at <http://www.red-seal.ca/resources/n.4.1-eng.html>

RSOS material is organized into the following categories: **MWA (Major Working Activity)**. The MWAs are further broken down into **TASKS** (*describes activities within an MWA*) and **SUB-TASKS** (*describe activities within a task – This is what the exam is based on*).

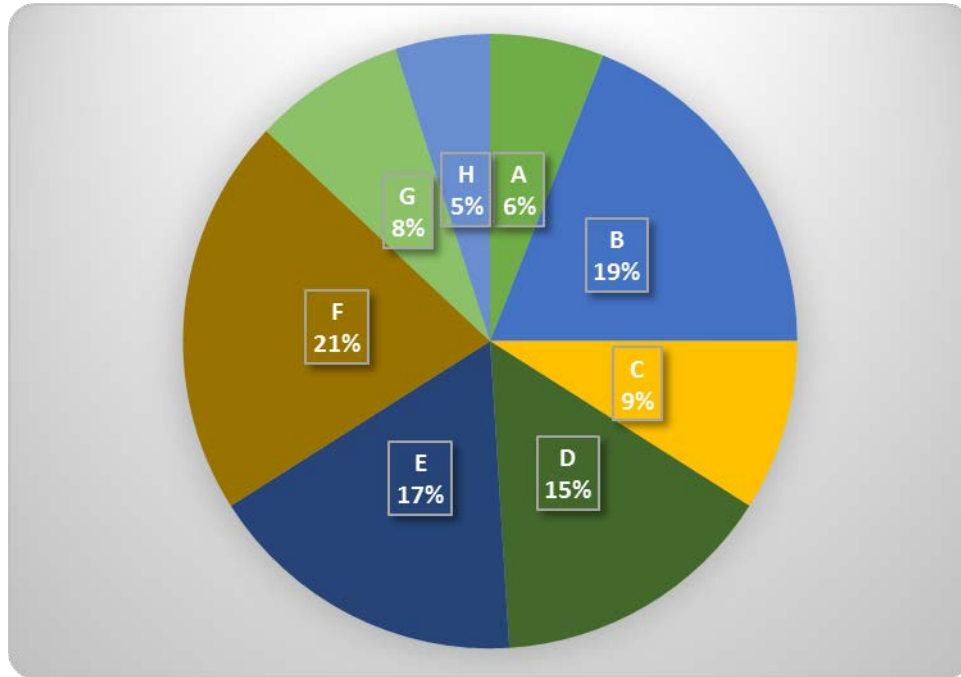


The NOA will continue to be used as the occupational standard for trades that do not yet have an RSOS developed.

RSOS Pie Chart

The RSOS Pie Chart presents the MWA percentages in the form of a pie chart which tells you the approximate number of questions from each MWA. For example, 6% of the questions on the **Automotive Service Technician** Exam will be based on **MWA A**.

AUTOMOTIVE SERVICE TECHNICIAN



MWA Titles			
MWA A	Performs Common Occupational Skills	MWA E	Diagnoses and Repairs Electrical and Comfort Control Systems
MWA B	Diagnoses and Repairs Engine and Engine Support Systems	MWA F	Diagnoses and Repairs Steering and Suspension, Braking, Control Systems, Tires, Hubs and Wheel Bearings
MWA C	Diagnoses and Repairs Vehicle Module Communications Systems	MWA G	Diagnoses and Repairs Restraint Systems, Body Components, Accessories and Trim
MWA D	Diagnoses and Repairs Driveline Systems	MWA H	Diagnoses and Repairs Hybrid and Electric Vehicles (EV)

Exam Breakdown

The **Automotive Service Technician** exam currently has 125 questions. The following table shows a breakdown of the number of questions that come from each RSOS MWA. It is important to note that the exact number of questions can change at any time. When you are ready to write your exam, you may contact your regional office to verify the number of questions (See Appendix A).

		# of Questions
MWA A	Performs Common Occupational Skills	8
Task 1	Performs safety related functions	
Task 2	Uses tools, equipment and documentation	
Task 3	Uses communication and mentoring techniques	
MWA B	Diagnoses and Repairs Engine and Engine Support Systems	24
Task 4	Diagnoses engine systems	
Task 5	Repairs engine systems	
Task 6	Diagnoses gasoline engine support systems	
Task 7	Repairs gasoline engine support systems	
Task 8	Diagnoses diesel engine support systems	
Task 9	Repairs diesel engine support systems	
MWA C	Diagnoses and Repairs Vehicle Module Communications Systems	12
Task 10	Diagnoses vehicle networking systems	
Task 11	Repairs vehicle networking systems	
MWA D	Diagnoses and Repairs Drive Line Systems	18
Task 12	Diagnoses drive line systems	
Task 13	Repairs drive line systems	
MWA E	Diagnoses and Repairs Electrical and Comfort Control Systems	21
Task 14	Diagnoses electrical systems and components	
Task 15	Repairs electrical systems and components	
Task 16	Diagnoses heating, ventilation and air conditioning (HVAC) and comfort control systems	
Task 17	Repairs heating, ventilation and air conditioning (HVAC) and comfort control systems	
MWA F	Diagnoses and Repairs Steering and Suspension, Braking, Control Systems, Tires, Hubs and Wheel Bearings	26
Task 18	Diagnoses steering and suspension, braking, control systems, tires, wheels, hubs and wheel bearings	
Task 19	Repairs steering and suspension, braking, control systems, tires, wheels, hubs and wheel bearings	
MWA G	Diagnoses and Repairs Restraint Systems, Body Components, Accessories and Trim	10
Task 20	Diagnoses restraint systems, body components, accessories and trim	
Task 21	Repairs restraint systems, body components, accessories and trim	
MWA H	Diagnoses and Repairs Hybrid and Electric Vehicles (EV)	6
Task 22	Diagnoses hybrid and EV	
Task 23	Repairs hybrid and EV	
	Total	125

RSOS Sub-tasks

The following *RSOS Task Profile Checklist* outlines the MWAs, tasks and sub-tasks for your trade. The IP Red Seal exam is written to test your knowledge and abilities regarding the sub-tasks in the RSOS. This chart can be used to review your current knowledge. You can review by placing a checkmark (✓) next to those you understand fully.

Place your focus on those you do not understand and study them until you are comfortable with the material. Think of possible questions in that particular content area.

The RSOS also contains a list of “supporting knowledge and abilities” for each sub-task. They are the skills and knowledge you must have to perform a sub-task. The supporting knowledge and abilities identified under each sub-task will be very helpful as you review. The list can be found in the RSOS, on the Red Seal website, for your trade.

Task Profile Checklist
Based on RSOS 2016
Automotive Service Technician

MWA A: Performs Common Occupational Skills

Task 1: Performs safety-related functions

Sub-Tasks

- Maintains safe work environment
- Uses personal protective equipment (PPE) and safety equipment

Task 2: Uses tools, equipment and documentation

Sub-Tasks

- Uses tools and equipment
- Uses fasteners, tubing, hoses and fittings
- Uses hoisting and lifting equipment
- Uses technical information

Task 3: Uses communication and mentoring techniques

Sub-Tasks

- Uses communication techniques
- Uses mentoring techniques

MWA B: Diagnoses and Repairs Engine and Engine Support Systems

Task 4: Diagnoses engine systems

- Sub-Tasks**
- Diagnoses cooling systems
 - Diagnoses lubricating systems
 - Diagnoses engine assembly
 - Diagnoses accessory drive systems

Task 5: Repairs engine systems

- Sub-Tasks**
- Repairs cooling systems
 - Repairs lubricating systems
 - Repairs engine assembly
 - Repairs accessory drive systems

Task 6: Diagnoses gasoline engine support systems

- Sub-Tasks**
- Diagnoses gasoline fuel delivery and injection systems
 - Diagnoses gasoline ignition systems
 - Diagnoses gasoline intake/exhaust systems
 - Diagnoses gasoline emission control systems

Task 7 : Repairs gasoline engine support systems

- Sub-Tasks**
- Repairs gasoline fuel delivery and injection systems
 - Repairs gasoline ignition systems
 - Repairs gasoline intake/exhaust systems
 - Repairs gasoline emission control systems

Task 8: Diagnoses diesel engine support systems

- Sub-Tasks**
- Diagnoses diesel fuel delivery and injection systems
 - Diagnoses diesel intake/exhaust systems
 - Diagnoses diesel emission control systems

Task 9: Repairs diesel engine support systems

- Sub-Tasks**
- Repairs diesel fuel delivery and injection systems
 - Repairs diesel intake/exhaust systems
 - Repairs diesel emission control systems

MWA C: Diagnoses and Repairs Vehicle Module Communication Systems

Task 10: Diagnoses vehicle networking systems

Sub-Tasks

- Reads diagnostic trouble codes (DTCs)
- Monitors data
- Interprets test results
- Tests system circuitry and components

Task 11: Repairs vehicle networking systems

Sub-Tasks

- Updates component software
- Replaces components
- Verifies vehicle module communications system repair

MWA D: Diagnoses and Repairs Drive Line Systems

Task 12: Diagnoses driveline systems

Sub-Tasks

- Diagnoses drive shafts and axles
- Diagnoses manual transmissions/transaxles
- Diagnoses automatic transmissions/transaxles
- Diagnoses clutches
- Diagnoses transfer cases
- Diagnoses final drive assemblies

Task 13: Repairs driveline systems

Sub-Tasks

- Repairs drive shafts and axles
- Repairs manual transmissions/transaxles
- Repairs automatic transmissions/transaxles
- Repairs clutches
- Repairs transfer cases
- Repairs final drive assemblies

MWA E: Diagnoses and Repairs Electrical and Comfort Control Systems

Task 14: Diagnoses electrical systems and components

Sub-Tasks

- Diagnoses basic wiring and electrical systems
- Diagnoses starting/charging systems and batteries
- Diagnoses lighting and wiper systems
- Diagnose entertainment systems
- Diagnoses electrical options
- Diagnoses instrumentation and information displays
- Diagnoses electrical accessories

Task 15: Repairs electrical systems and components

Sub-Tasks

- Repairs basic wiring and electrical systems
- Repairs starting/charging systems and batteries
- Repairs lighting and wiper systems
- Repairs entertainment systems
- Repairs electrical options
- Repairs instrumentation and information displays
- Installs electrical accessories
- Repairs electrical accessories

Task 16: Diagnoses heating, ventilation and air conditioning (HVAC) and comfort control systems

Sub-Tasks

- Diagnoses air flow control systems
- Diagnoses refrigerant systems
- Diagnoses heating systems

Task 17: Repairs HVAC and comfort control systems

Sub-Tasks

- Repairs air flow control systems
- Repairs refrigerant systems
- Repairs heating systems

MWA F: Diagnoses and Repairs Steering and Suspension, Braking, Control Systems, Tires, Hubs and Wheel Bearings

Task 18: Diagnoses steering and suspension, braking, control systems, tires, wheels, hubs and wheel bearings

Sub-Tasks

- Diagnoses steering, suspension and control systems
- Diagnoses braking and control systems
- Diagnoses tires, wheels, hubs and wheel bearings

Task 19: Repairs steering and suspension, braking, control systems, tires, wheels, hubs and wheel bearings

Sub-Tasks

- Repairs steering, suspension and control systems
- Repairs braking and control systems
- Repairs tires, wheels, hubs and wheel bearings

MWA G: Diagnoses and Repairs Restraint Systems, Body Components, Accessories and Trim

Task 20: Diagnoses restraint systems, body components, accessories and trim

Sub-Tasks

- Diagnoses restraint systems
- Diagnoses wind noise, rattles and water leaks
- Diagnoses interior and exterior components, accessories and trim
- Diagnoses latches, locks and movable glass

Task 21: Repairs restraint systems, body components, accessories and trim

Sub-Tasks

- Repairs restraint systems
- Repairs problems with wind noise, rattles and water leaks
- Repairs interior and exterior components, accessories and trim
- Repairs latches, locks and movable glass
- Installs interior and exterior accessories

MWA H: Diagnoses and Repairs Hybrid and Electric Vehicles (EV)

Task 22: Diagnoses hybrid and EV

Sub-Tasks

- Implements specific safety protocols for hybrid and EV
- Diagnoses hybrid and EV systems

Task 23: Repairs hybrid and EV

Sub-Tasks

- Repairs hybrid vehicle systems
- Repairs EV systems

Create a Study Plan

As you prepare for your exam, it is important to plan a schedule. The following two tables will help you stay on track.

The first table is a **“Weekly Study Plan.”** In this table list the areas you will focus your study for each day. You should include items you need to review as well as items you need to study. Remember, more time will be needed for study in areas you find difficult, whereas you may only require review in areas you are more familiar with. As you work through the RSOS sub-task list you can start to fill in this table.

The second table is a **“Study Time Table.”** It is important to create a study schedule where you determine the best days of the week and times of day for you to study.

Print several copies of these tables and fill out for each week of study. It is important to stick to your study schedule.

Weekly Study Plan for Week of: _____

	Area of Study 1	Area of Study 2	Area of Study 3	Area of Study 4	Area of Study 5	Area of Study 6
Mon.						
Tues.						
Wed.						
Thu.						
Fri.						
Sat.						
Sun.						

Study Time Table for Week of: _____

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
8:00 AM - 9:00 AM							
9:00 AM - 10:00 AM							
10:00 AM - 11:00 AM							
11:00 AM - 12:00 Noon							
12:00 Noon - 1:00 PM							
1:00 PM - 2:00 PM							
2:00 PM - 3:00 PM							
3:00 PM - 4:00 PM							
4:00 PM - 5:00 PM							
5:00 PM - 6:00 PM							
6:00 PM - 7:00 PM							
7:00 PM - 8:00 PM							

Resources - Websites

Study information can be drawn from a variety of sources. A sample list of study materials (websites and books) is provided below. These and other helpful resources may be found in a local college bookstore, on the internet, or at your place of employment. You may also be able to borrow them from an apprentice or journey person in your trade.

Study Strategies and Exam Preparation Guide

The *Study Strategies & Exam Preparation Guide* is meant to be used in conjunction with this study guide. It provides direction and information on such areas as study habits, test preparation and test taking techniques.

Exam Preparation Guide: <https://www.gov.nl.ca/atcd/apprentices-youth/self-study/study-guides/>

Plan of Training (POT)

A *Provincial Plan of Training* details the full scope of learning for a particular occupation, including both technical training competencies and industry experiences necessary to write an IP Red Seal exam (and complete the requirements for Red Seal Certification), or to write a provincial examination. The Plan of Training is based on the RSOS.

POT Website: <https://www.gov.nl.ca/atcd/designated-trades/pots-aacs/>

Red Seal Website

Red Seal is a program that sets common standards to evaluate the skills of tradespeople across Canada. It is a partnership between the Federal Government and the provinces/territories.

The Red Seal model has been based on the National Occupational Analyses (NOA) which supports the development of multiple-choice examinations. A new Red Seal Occupational Standard (RSOS) was introduced in 2015 and is taking the place of the NOA.

Red Seal Website: <http://www.red-seal.ca/>

Automotive Service Technician PRACTICE Exam

This is **NOT** an IP exam. This is a practice exam provided by the Inter-provincial Standards Red Seal program. It was developed using similar question types to that of a Red Seal exam. The exam is intended to be used for self-assessment in preparation for writing an IP Exam.

Sample questions can be found at:

<http://www.red-seal.ca/s.1mpl.2.2x.1mQ.5.2st.3.4ns-eng.html?tid=23>

Red Seal Exam Self-Assessment Guide

Use this self-assessment tool to rate your own understanding and experience with the tasks of the trade that are on the Red Seal examination:

https://www.red-seal.ca/_conf/assets/custom/docms/auto-serv-tech/self-assessment.pdf

Glossary of Terms

The Red Seal website also lists a Glossary of Terms which will be helpful in preparing for your IP exam:

http://www.red-seal.ca/trades/autoservtech/2016rs.4s_.1ppc_gl.4ss.1ry-eng.html

Acronyms

The Red Seal website also lists Acronyms which will be helpful in preparing for your IP exam:

http://www.red-seal.ca/trades/autoservtech/2016rs.4s_.1pp.1_.1cr.4nym-eng.html

List of Tools and Equipment

The Red Seal website also shows a list of Tools and Equipment which will be helpful in preparing for your IP exam:

http://www.red-seal.ca/trades/autoservtech/2016rs.4s_.1ppb_t.4.4ls-eng.html

Resources – Book List

The books listed below can help you obtain information on specific topics. It is not necessary to use these books specifically, as you may find others that will be equally beneficial.

If you wish to obtain any of the resources listed below, here is the reference information:

- Automotive Technology: A Systems Approach*, 1st edition, Thomson Nelson, 2007, Erjavec. J., Restoule, M., and Playter, A., ISBN 0176104399
- Automotive Technology: Principles, Diagnosis, and Service*, Pearson Prentice Hall, 2006, Davely, R., Halderman J.D., Marchant, J. and Mitchell, Chase D., ISBN 0131248901
- Automotive Technology: A Systems Approach*, 5th edition, Thomson Nelson, 2010, Erjavec, J., ISBN-10: 1428311491
- Today's Technician: Basic Automotive Service and Systems*, 4th edition, Thomson Nelson, 2009, Owne, C.E., ISBN-10: 1435453840
- Customer Service: A Practical Approach*, 4th edition, Pearson Prentice Hall, 2006, Harris, E.K., ISBN 0131989375
- Practical Problems in Mathematics for Automotive Technicians*, Delmar Gengage Learning, 2008, Moore, G., ISBN 0827346220
- Canadian Automotive Service Technician: Certificate of Qualification Test Preparation*, 2nd edition, Centennial College Press, 2007, Bennett, S., and Weatherhead, D., ISBN 9780919852617

Disclaimer

Various external resources (websites, textbooks) have been listed in this study guide to assist an individual in preparing to write an IP Red Seal Exam. This does not mean the Department of Immigration, Population Growth and Skills, Newfoundland and Labrador endorses the material or that these are recommended as the best resources. There may be other resources of equal or greater value to an individual preparing for an IP Red Seal exam. The Department of Immigration, Population Growth and Skills has no control over the content of external textbooks or websites listed. No responsibility is assumed for the accuracy of the material.

Conclusion

We hope this guide has provided you with some useful tools as you prepare for your IP Red Seal exam. If you have any questions regarding your IP Red Seal exam please contact your regional office (*see Appendix A for a list of regional offices*).

We appreciate your comments and feedback regarding the usefulness of this study guide. If you have any comments or suggestions, we welcome your feedback. The feedback form at the end of this guide can be used for this purpose.

Appendix A: Regional Offices

If you have any questions regarding your IP Red Seal exam, please contact one of the following regional offices:

Department of Immigration, Population Growth and Skills
Apprenticeship and Trades Certification Division
Toll Free: 1-877-771-3737

<https://www.gov.nl.ca/atcd/contact-us/staff-listing-and-office-locations/>

Corner Brook

1-3 Union Street
Aylward Building, 2nd Floor
Corner Brook, NL A2H 5M7

Telephone: (709) 637-2366
Facsimile: (709) 637-2519

Grand Falls-Windsor

42 Hardy Avenue
Grand Falls-Windsor, NL
A2A 2J9

Telephone: (709) 292-4215
Facsimile: (709) 292-4502

Clarenville

45 Tilley's Road
Clarenville, NL
A5A 1Z4

Telephone: (709) 466-3982
Facsimile: (709) 466-3987

St. John's

P.O. Box 8700
1170 Topsail Road
Mount Pearl, NL A1B 4J6

Telephone: (709) 729-2729
Facsimile: (709) 729-5878

Happy Valley – Goose Bay

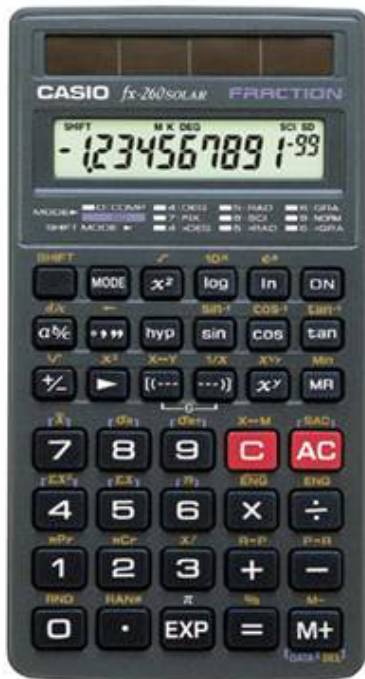
163 Hamilton River Road
Bursey Building
Happy Valley-Goose Bay, NL A0P 1E0

Telephone: (709) 896-6348
Facsimile: (709) 896-3733

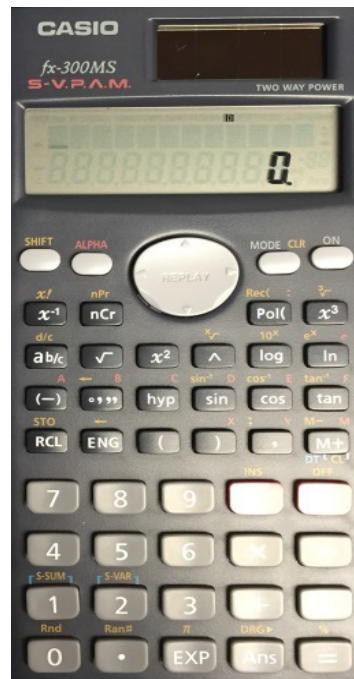
Appendix B: Calculator Use

The picture below shows a calculator with the same functions as the one you will be provided with during your exam. It is advisable to borrow or purchase one with similar functions so that you can familiarize yourself with it before you write your exam.

Casio FX-260



Casio FX-300 MS



Appendix C: Answer Sheet Example

With your exam you will be given an answer sheet similar to the one below. When answering multiple choice questions be sure to fill the circle completely and fill the circle that corresponds to the question on the exam.

Dual readhead scanner required to score this sheet

KEY ID
 A B C D

SCORING & PRINTING OPTIONS:
 RESCORE MULTIPLE ANSWER SCORING
 This sheet always uses the "Total Only" scoring option.

FEED IN THIS DIRECTION

1	T F	A B C D E
2	T F	A B C D E
3	T F	A B C D E
4	T F	A B C D E
5	T F	A B C D E
6	T F	A B C D E
7	T F	A B C D E
8	T F	A B C D E
9	T F	A B C D E
10	T F	A B C D E
11	T F	A B C D E
12	T F	A B C D E
13	T F	A B C D E
14	T F	A B C D E
15	T F	A B C D E
16	T F	A B C D E
17	T F	A B C D E
18	T F	A B C D E
19	T F	A B C D E
20	T F	A B C D E
21	T F	A B C D E
22	T F	A B C D E
23	T F	A B C D E
24	T F	A B C D E
25	T F	A B C D E
26	T F	A B C D E
27	T F	A B C D E
28	T F	A B C D E
29	T F	A B C D E
30	T F	A B C D E
31	T F	A B C D E
32	T F	A B C D E
33	T F	A B C D E
34	T F	A B C D E
35	T F	A B C D E
36	T F	A B C D E
37	T F	A B C D E
38	T F	A B C D E
39	T F	A B C D E
40	T F	A B C D E
41	T F	A B C D E
42	T F	A B C D E
43	T F	A B C D E
44	T F	A B C D E
45	T F	A B C D E
46	T F	A B C D E
47	T F	A B C D E
48	T F	A B C D E
49	T F	A B C D E
50	T F	A B C D E
51	T F	A B C D E
52	T F	A B C D E
53	T F	A B C D E
54	T F	A B C D E
55	T F	A B C D E
56	T F	A B C D E
57	T F	A B C D E
58	T F	A B C D E
59	T F	A B C D E
60	T F	A B C D E
61	T F	A B C D E
62	T F	A B C D E
63	T F	A B C D E
64	T F	A B C D E
65	T F	A B C D E
66	T F	A B C D E
67	T F	A B C D E
68	T F	A B C D E
69	T F	A B C D E
70	T F	A B C D E
71	T F	A B C D E
72	T F	A B C D E
73	T F	A B C D E
74	T F	A B C D E
75	T F	A B C D E
76	T F	A B C D E
77	T F	A B C D E
78	T F	A B C D E
79	T F	A B C D E
80	T F	A B C D E
81	T F	A B C D E
82	T F	A B C D E
83	T F	A B C D E
84	T F	A B C D E
85	T F	A B C D E
86	T F	A B C D E
87	T F	A B C D E
88	T F	A B C D E
89	T F	A B C D E
90	T F	A B C D E
91	T F	A B C D E
92	T F	A B C D E
93	T F	A B C D E
94	T F	A B C D E
95	T F	A B C D E
96	T F	A B C D E
97	T F	A B C D E
98	T F	A B C D E
99	T F	A B C D E
100	T F	A B C D E

ANSWER KEY INFO.
 # OF KEYS
 ITEM COUNT

0	0	0	2
1	1	1	3
2	2	2	4
3	3	3	5
4	4	4	6
5	5	5	7
6	6	6	8
7	7	7	9
8	8	8	0
9	9	9	1

PERFORMANCE ASSESSMENT
 % OF TOTAL SCORE
 POINTS EARNED

0% = 100%			
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Bar Code

NUMBER CORRECT	
PERCENT CORRECT	
ROSTER NUMBER	
SCORE	
RESCORE	

COMBINED POINTS EARNED	
COMBINED PERCENT CORRECT	
LETTER GRADE	
SCORE	
RESCORE	

200 ITEM

MARKING INSTRUCTIONS
 Use a No. 2 Pencil
 Fill oval completely
 Erase cleanly

STUDENT ID NUMBER

0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9

NAME _____
 SUBJECT _____
 PERIOD _____ DATE _____

Feedback Form

Study Guide – Automotive Service Technician

Please answer the following:

- (1) This Study Guide is a useful tool for exam preparation.
 strongly agree agree disagree strongly disagree

- (2) The topics contained in the guide are arranged in a logical order.
 strongly agree agree disagree strongly disagree

- (3) The design and format of the guide caught my attention.
 strongly agree agree disagree strongly disagree

- (4) The instructions throughout the guide are clear and to the point.
 strongly agree agree disagree strongly disagree

- (5) The resources listed in this guide are suitable and valuable.
 strongly agree agree disagree strongly disagree

- (6) The guide should contain more information.
 strongly agree agree disagree strongly disagree

Suggested information/resources to include:

Additional Comments:

Please complete this form and return via fax or mail to the following:

Department of Immigration, Population Growth and Skills
Apprenticeship and Trades Certification Division
Standards and Curriculum Unit
45 Tilley's Road, Clarenville, NL A5A 1Z4
Fax: (709) 466-3987

