

Assessment Booklet No.

09/09/13/09
CTQ-1

**AUTOMOTIVE
SERVICE
TECHNICIAN**

QUALIFICATION

PRACTICAL ASSESSMENT

General Instructions

The candidate must be aware and conform to the following guidelines:

- Provide and use **Approved Personal Protective Equipment (PPE)** for the duration of the assessment and work environment. PPE required for this assessment includes coveralls, CSA approved safety boots/shoes and safety glasses.
- Complete the Candidate Information as instructed. Once completed place your assessment booklet where it is usable but protected from any interferences e.g. spills or damage from any source.
- The assessment completion time is 4 hours. The invigilator may provide additional information regarding assessment timelines.
- No correspondence is allowed with other candidates during the assessment verbally or electronically. The use of cell phones or electronic devices is strictly prohibited.
- The assessment may be terminated by the invigilator under any of the following circumstances, if the candidate:
 - demonstrates a lack of competency that may result in physical injury or mechanical damage;
 - demonstrates a lack of the required skills that will produce unsatisfactory results; or
 - demonstrates an inability to follow the directed procedures outlined in the assessment booklet.
- Once the assessment is completed the candidate will:
 - clean-up the assessment workstation;
 - return all tools and equipment to their original location;
 - return the assessment booklet to the assigned invigilator before leaving; and
 - exit the test site quietly without disturbance.

General Information

- The Practical Assessment pass mark minimum is 70%.
- The candidate's assessment results will **not** be issued at the test site.
- The candidate's results will be sent within 30 business days from the scheduled assessment date. **All marks are final.**

Alberta Enterprise and Advanced Education Practical Assessment

Automotive Service Technician
Qualification Certificate Program

VER.	09/09/13/09 CTQ-1
------	----------------------

TO BE FILLED IN BY CANDIDATE (PLEASE PRINT)

Place of Assessment Date.....

Candidate's name
(LAST NAME) (FIRST NAME) (INITIALS)

Permanent Mailing Address
(NUMBER AND STREET)

City or Town Phone No.
(POSTAL CODE)

Employer
(COMPANY NAME) (CITY OR TOWN)

AIT Identifier

Sign here

TO BE FILLED IN BY INVIGILATOR

SUMMARY OF MARKS	Possible Score	Actual Score
GENERAL PRACTICES ASSESSMENT (All Stations Averaged) Stn A: _____ Stn B: _____ Stn C: _____ Stn D: _____	25	
STATION A - UNDER HOOD AND UNDER VEHICLE INSPECTIONS	20	
STATION B – WHEEL ASSEMBLY AND BRAKE INSPECTION	20	
STATION C - CHARGING AND STARTING SYSTEM TESTS	30	
STATION D - SCAN TOOL OPERATIONS	20	
TOTAL	115	

PASS MARK 70%

Invigilator Instructions: If a mark in any Section of the practical assessment is less than 70% please provide a comment on the reverse side of this sheet.

INVIGILATOR:	DATE:
--------------	-------

This original page is to be returned to Technical Training and Certification Branch of Alberta Apprenticeship and Industry Training, **Attention: Examination Marking Area**, 10th Floor, 10155 – 102 Street, Edmonton, AB, T5J 4L5 immediately upon completion of the Practical Assessment.

Rules Governing the Practical Assessment

This assessment will include five general competencies:

- use PPE, service references, shop equipment and tools to common workplace standards;
- perform under hood and under vehicle inspection tasks;
- perform under vehicle inspection tasks then remove a wheel; inspect a brake unit and reinstall the wheel;
- test and perform any required diagnosis of charging and starting systems; and
- use a scan tool to retrieve codes and then use service information and visual/physical inspections to report on findings and propose any further diagnostic testing.

1. Orientation

This is your opportunity to get an understanding of what the assessment entails and ask any questions.

Time Frame

The assessment completion time is 4 hours.

Safety

All candidates are required to provide and wear basic personal protective equipment (including coveralls, CSA approved safety boots/shoes and safety glasses).

During the assessment, it is expected participants will keep the general working area free of safety hazards including the removal of waste or excess tools and materials.

2. Tools and Equipment

For this practical assessment the following equipment and tools are supplied and used. Some substitutions may be required if unforeseen circumstances arise. This is not a complete list but is provided for candidate information and preparation for the practical assessment.

<ul style="list-style-type: none"> • Disc/Drum micrometer – imperial & metric • Torque wrench 0 – 50 lbs. & 0 – 150 lbs. • Drive on hoist with jacking/lifting unit. • Brake fluid boiling point tester • Fluke 87 or Fluke 115 Multimeter • All-Data or Mitchell on Demand Information Systems • Terminal Pin-out kits and fused jumper wire • Mac Charging System Analyzer Model #BCHD 800 	<ul style="list-style-type: none"> • Digital calipers • Brake pad gauge set • Tire tread depth gauge • Snap-on Verus Scanner • AVR or DVOM • Amoco Drive On Hoist • Sun VAT 40
Service Information:	
<ul style="list-style-type: none"> • Mitchell on Demand • Alldata 	<ul style="list-style-type: none"> • ILM 090204b (v5.1) and 090205c (v5.0) • Supplied Specifications Sheets

3. Materials

All materials required to complete the assessment are supplied. If the material is defective, please inform the invigilator immediately.

Station A: UNDER HOOD AND UNDER VEHICLE INSPECTIONS

Time allowed: 1 hour maximum.

In this task you will demonstrate your ability to perform under hood and under vehicle inspection tasks.

Step One: Perform under hood and under vehicle inspections and indicate your assessment on right-hand side below.

Component	Pass	Fail	N/A
Air filter (condition)			
Automatic transmission fluid (level and condition)			
A/C evaporator and oil coolers (visual inspection only)			
Battery (visual inspection only)			
Brake master cylinder (leaks, fluid condition and level)			
Clutch master cylinder (leaks, fluid condition and level)			
Cooling system (leaks, hoses, coolant strength, and radiator external condition)			
Engine (visual inspection for leaks and obvious faults)			
Engine and transmission mounts (viewed from under hood only)			
Engine oil (level)			
Engine accessory drive belts (condition and tension)			
Exhaust manifolds (visual inspection only)			
Fuel system (visual inspection only)			
Brake power assist system (visual inspection only)			
Under hood fuse panel (visual inspection only)			

Additional Notes / Faults:

NOTE: Facility staff will operate the hoist upon candidate's directions while lifting or lowering the vehicle on the hoist. Candidate will operate the jacking beam after positioning the contact pads and verifying to the observers that the lifting points are correctly selected

Steering and Suspension Inspection - Visual / Hands-on inspection only.

Component	Pass	Fail	N/A
Wheel bearings			
Ball joints (measure wear on one joint as directed)			
Tie rod ends			
Pitman arm			
Idler arm			
Steering stabilizer / dampener			
Steering shaft assembly			
Steering box/rack and pinion			
Power steering assist system			
Control arms			
Struts / shocks			
Springs			
Sway bar(s), links and bushings			

Additional Notes

Under Vehicle Inspection (Other components.)

Visual / Hands-on inspection only, leaks and missing components, as well as, common wear point checks.

Component	Pass	Fail	N/A
Engine			
Transmission / transaxle			
Transfer case			
Drive axles / propeller shafts			
Rear/front axle assembly / differentials			
Floor pan			
Exhaust system			

Additional Notes:

Station B: WHEEL ASSEMBLY AND BRAKE INSPECTION

Time allowed: 1 hour maximum.

In this task you will demonstrate your ability to perform under vehicle inspection tasks then remove a wheel, inspect a brake unit and reinstall the wheel.

Step One - Wheels and Tires Inspection - Visual / Hands-on inspection only except for tread depth measurement.

Component		Pass	Fail	N/A
Tire tread depth.	LF: _____ mm			
	RF: _____ mm			
Tire size correct for vehicle	RF			
	LF			
	RR			
	LR			
Tire condition and damage (general).	RF			
	LF			
	RR			
	LR			
Wheels (condition / damage)	RF			
	LF			
	RR			
	LR			
Wheel nuts / bolts / studs. (wear / damage)	RF			
	LF			
	RR			
	LR			

Additional Notes:

Step Two - Brake Inspection.

Remove the tire and wheel assembly selected by the invigilator. Perform brake inspection tasks below then reinstall tire and wheel assembly. Use the supplied data sheet.

Component	Pass	Fail	N/A
REMOVE TIRE AND WHEEL ASSEMBLY			
Brake pad lining minimum thickness. _____ mm.			
Brake rotor minimum thickness. _____ mm.			
Brake rotor condition and run out. _____ mm.			
Other brake hardware condition.			
All brake hoses	LF		
	RF		
	Rear or RR/LR		
Park brake actuator linkage (cables / levels) Under Vehicle components only.			

Additional Notes:

Return tools / equipment and clean up area.

Station C: CHARGING AND STARTING SYSTEM TESTS

Time Allowed: 1 hour maximum.

In this task you will demonstrate your ability to test and perform any required diagnosis of charging and starting systems.

Notes: Use the provided data sheet for manufacturer's specifications. Connect exhaust to shop exhaust extraction system. The special instructions for the use of the starter button are provided during orientation. Station invigilator will indicate the required voltage drop test.

Charging Tests	Readings / Faults / Notes / Diagnosis	Pass	Fail
Battery Condition			
Visual /Noise inspection of charging system and battery			
Regulated voltage output			
Maximum current output			
Voltage drop: (As Directed)			

Additional Notes or Diagnosis:

Starter System Tests	Readings / Faults / Notes / Diagnosis	Pass	Fail
Visual / Noise inspection of starting system components			
Starter motor current draw			

Additional Notes or Diagnosis:

Return tools / equipment and clean up area.

Station D: SCAN TOOL OPERATIONS

Time Allowed: 1 hour maximum.

In this task you will demonstrate your ability to use a scan tool to retrieve codes and then use service information and visual/physical inspections to report on findings and propose any further diagnostic testing.

Note: Additional instructions will be given during orientation to prevent unrelated error codes not related to this task.

Identify and record the Vehicle Identification Number (VIN) as well as the make, model and year of the vehicle.

V																			
I																			
N																			
Make:			Model:										Year:						

Task 1: Scan Tool Diagnosis

Test	Codes / Readings / Faults / Diagnosis	Pass	Fail
Scan for DIRECTED codes			
Interpret code on scanner			
Identify fault tree / diagnosis procedure in service information			
Make visual and physical inspection of related components			
Perform diagnostic system checks as applicable			
Propose any required diagnostic testing sequence to identify fault			

Return tools / equipment and clean up area. Remain at station, perform Task D2 when directed.

Task 2: Scan Tool Component Control

In this task you will demonstrate your ability to use a scan tool to control components.

Ensure that the invigilator views your work/readouts during the task.

1. Demonstrate cycling the ABS pump motor for the industry expert present at your station.
Have the station invigilator initial the space below when you have demonstrated your ability to cycle the ABS pump motor.

ABS Pump Motor Cycle Test:

2. Have the station invigilator initial the space below when you have demonstrated your ability to perform the injector disable test for number 4 cylinder.

Number 4 Cylinder – Injector Disable Test:

Return tools / equipment and clean up area.

Invigilator Package

Candidate Name: _____ AIT ID #: _____

General Practices Assessment (ALL STATIONS)

Note: this section must be assessed at ALL STATIONS then all four marks for this section are averaged for page 2 of the Qualification Practical Assessment Booklet – Summary of Marks.

A. Demonstrates related industry safety expectations.

Expectations:

- suitable clothing and PPE used at appropriate times in the shop;
- demonstrates practices associated with general safety rules in an AST shop;
- demonstrates an understanding of common safety features of an AST shop; and
- demonstrates maintaining safety of self and others in an AST shop.

Station A	Station B	Station C	Station D	Average of 4 Stations
				/10

Assessment Guidelines	
10	All expectations / items correctly identified and effectively used.
9 - 3	Not all expectations / items correctly identified, but majority of expectations are followed.
2 - 1	Some expectations / items are identified but candidate does not follow most expectations/requirements.
0	Does not meet safety expectations.

B. Demonstrates competence in using service references.

Expectations:

- demonstrates an understanding of how to identify a vehicle in system / reference, and
- demonstrates the ability to use system to efficiently locate correct data / specifications.

Station A	Station B	Station C	Station D	Average of 4 Stations
				/5

Assessment Guidelines	
5	References are competently and efficiently used to obtain all required information.
4 - 3	References are used, not always efficiently but most of information is found.
2 - 1	Used references but experiences difficulty and does not find required information.
0	Does not utilize references provided, may become too unsafe to continue.

C. Demonstrates competence with automotive shop equipment and tools.

Expectations:

- demonstrates an understanding of how to select and use common items, and
- demonstrates ability to use tools and equipment efficiently and safely.

Station A	Station B	Station C	Station D	Average of 4 Stations
				/5

Assessment Guidelines	
5	All tools and equipment are competently and efficiently used to achieve tasks/operations.
4 - 3	Items are used safely, not always efficiently, but most tasks / operations achieved.
2 - 0	Used items unsafely or with obvious difficulty and does not achieve tasks/operations.

D. Demonstrates appropriate / common workplace practices for an AST shop.

Expectations:

- demonstrates an understanding of how to organize work;
- demonstrates the ability to clean and return tools and equipment after tasks are completed; and
- demonstrates working in ways that would not conflict with others.

Station A	Station B	Station C	Station D	Average of 4 Stations
				/5

Assessment Guidelines	
5	All tools and equipment are competently and efficiently used to achieve tasks/operations.
4 - 3	Items are used safely, not always efficiently, but most tasks/operations achieved.
2 - 1	Very unfamiliar with workplace practices, has obvious difficulty and unable to achieve simple tasks / operations in shop setting.
0	Unwilling to follow directions.

General Practices Assessment Total of Averages: _____/25

Station A – Under Hood and Under Vehicle Inspections

A. Completes tasks to industry expectations during vehicle inspection. _____/10

Expectations:

- correctly identify required components, fluids, and systems of a vehicle during assigned task;
- demonstrates expected checks of all items on list;
- demonstrates an understanding of what classifies an item as faulty; and
- demonstrates use of additional tools/equipment as needed.

Assessment Guidelines	
10	All items correctly identified and effectively inspected and all faults found. Demonstrates technician excellence level of knowledge and skills for these tasks.
9 - 3	Not all items / fluids correctly identified, but majority of faults are identified.
2 - 1	Parts can be identified but cannot identify all faults.
0	Does not seem familiar with vehicle parts, cannot identify any parts or faults.

B. Identifies all expected faults during vehicle inspection _____/10

Expectations:

- demonstrates expected checks of all items on list;
- demonstrates an understanding of what classifies an item as faulty; and
- identifies all faulty items correctly.

Assessment Guidelines	
10	All items correctly identified and effectively inspected and all faults found. Demonstrates excellent technician of level of knowledge and skills for these tasks.
9 - 4	Not always effective, some problems with identification but most items / faults are identified.
3 - 1	Parts can be identified but cannot identify all faults.
0	Does not meet safety expectations.

Station A Assessment Total: _____/20

Station B – Wheel Assembly and Brake Inspection

A. Follows industry procedures to remove a tire and wheel assembly, inspect brake unit and reinstall tire and wheel assembly.

_____/10

Expectations:

- safely loosens lug nuts of wheel;
- safely supports vehicle for wheel removal;
- removes wheel and stores out of immediate work area;
- correctly inspects brake unit and components;
- demonstrates understanding of what classifies an item as faulty;
- identifies all faulty items / components;
- identifies and uses the correct specifications for lug nuts torque; and
- reinstalls wheel assembly with correct tightening pattern and steps.

Assessment Guidelines	
10	All items correctly identified and effectively inspected. Demonstrates technician excellence level of knowledge and skills for these tasks.
9 - 5	Not all items/fluids correctly identified, but majority of expectations followed for task. Wheel is installed correctly.
4 - 1	Not all parts identified correctly and wheel incorrectly installed.
0	Safety is a concern during most of task and cannot identify parts or install wheel correctly.

B. Identifies all expected faults during vehicle inspection

_____/10

Expectations:

- demonstrates all checks of items on list in a fashion that focuses on faults;
- demonstrates understanding of what classifies an item as faulty; and
- identifies all faulty items correctly.

Assessment Guidelines	
10	All items correctly identified and effectively inspected and all faults found. Demonstrates technician excellence level of knowledge and skills for these tasks.
9 - 3	Not all items/fluids correctly identified, but majority of faults are identified.
2 - 1	Parts can be identified but cannot identify all faults.
0	No demonstration of parts name, system knowledge or task understanding.

Station B Assessment Total: _____/20

Station C - Charging and Starting System Tests

CHARGING SYSTEM AND BATTERY TESTING

A. Performs all tasks of charging system and battery test.

_____/5

Expectations:

- understands what procedures are required for these tests;
- demonstrates expected checks of all items related to task;
- performs tasks in safe, logical and effective sequence; and
- performs voltage drop testing.

Assessment Guidelines	
5	All tasks correctly performed and effectively demonstrated to find faults. Demonstrates technician excellence level of knowledge and skills for these tasks.
4 - 3	Not all items/fluids/faults correctly identified, but majority of faults are identified.
2 - 1	Tasks can be described but cannot identify all faults.
0	Unsafe actions at times, difficulty identifying parts or any faults.

B. Identifies all expected faults during charging system and battery tests.

_____/10

Expectations:

- demonstrates understanding of what classifies an item as faulty, and
- identifies all faulty items correctly.

Assessment Guidelines	
10	All faults correctly and efficiently identified. Demonstrates technician excellence level of knowledge and skills for these tasks.
9 - 3	Not all items / fluids correctly identified, majority of faults are identified.
2 - 1	Parts can be identified but cannot identify all faults. Some serviceable parts are identified as faulty.
0	No demonstration of parts name, system knowledge or task understanding.

STARTING SYSTEM TESTING

C. Performs all tasks of starting system test.

_____/5

Expectations:

- understands what procedures are required for these tests, and
- demonstrates expected checks of all items related to task.

Assessment Guidelines	
10	All items correctly identified and effectively inspected and all faults found. Demonstrates technician excellence level of knowledge and skills for these tasks.
9 - 3	Not all items/fluids correctly identified, but majority of faults are identified.
2 - 1	Parts can be identified but cannot identify all faults.
0	Unsafe actions at times, difficulty identifying parts or any faults.

D. Identifies all expected faults during starting system test.

_____/10

Expectations:

- demonstrates understanding of what classifies an item as faulty, and
- identifies all faulty items correctly.

Assessment Guidelines	
10	All items correctly identified and effectively inspected and all faults found. Demonstrates technician excellence level of knowledge and skills for these tasks.
9 - 5	Not all faults correctly identified, but majority of faults are identified. Some serviceable parts are identified as faulty.
4 - 3	Minority of faults correctly identified. Some serviceable parts are identified as faulty.
2 - 1	Parts can be identified but cannot identify all faults.
0	No demonstration of parts names, system knowledge or task understanding.

Station C Assessment Total ____/30

STATION D - SCAN TOOL OPERATIONS

DIAGNOSTIC TESTING

A. Uses scan tool to download all codes.

_____/5

Expectations:

- Performs steps to prepare vehicle to download codes.
- Follows correct sequence of operation to obtain codes.
- Identifies codes in reference materials.

Assessment Guidelines	
10	All codes efficiently and correctly downloaded and identified. Demonstrates technician excellence level of knowledge and skills for these tasks.
9 - 3	Not all codes correctly identified but majority of expectations demonstrated.
2 - 1	Some codes can be identified but no understanding of what do to with them.
0	No demonstration of names, system knowledge or task understanding.

B. Performs diagnosis to identify faults.

_____/10

Expectations:

- demonstrates all expected items on test document;
- uses fault trees effectively to diagnose problems;
- correctly interprets all codes and then takes effective steps to diagnose one or two code (simple) problems; and
- correctly interprets codes but if multiple (three or more) code sequences (complex problems) then uses knowledge and resources to make an effective plan to diagnose faults.

Assessment Guidelines	
10	All steps correctly identified, effectively performed and all faults found. Demonstrates technician excellence level of knowledge and skills for these tasks.
9 - 5	Not every aspect of each fault identified, but correct procedures and sequence followed.
4 - 3	Correct tasks and sequence partially followed but results in misleading diagnosis with only a minority of faults identified.
2 - 1	Some steps can be identified but inability to perform diagnostic steps (even with occasional prompts) results in inability to identify some faults.
0	No demonstration of names, system knowledge or task understanding.

SCAN TOOL COMPONENT CONTROL

C. Performs scan tool component control tasks.

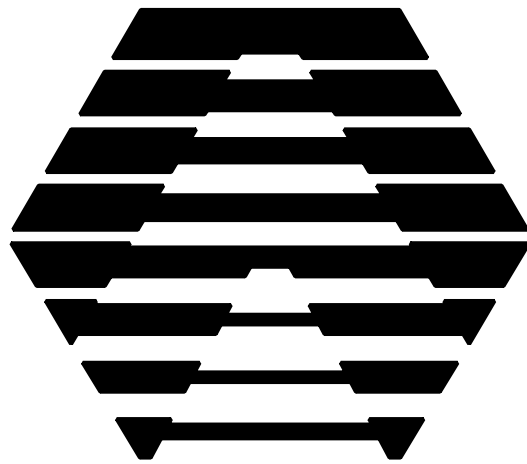
_____/5

Expectations:

- demonstrates all expected tasks, and
- follows correct sequence of operation to obtain actions.

Assessment Guidelines	
5	All items correctly identified and effectively inspected and all faults found. Demonstrates technician excellence level of knowledge and skills for these tasks.
4 - 2	Not all items/fluids correctly identified, but majority of faults are identified.
1	Parts can be identified but cannot identify all faults.
0	No demonstration of names, system knowledge or task understanding.

Station D Assessment Total: _____/20



Excellence through training and experience