

# UTAH ATE SKILL CERTIFICATION

## AUTOMOTIVE SERVICE TECHNICIAN

### STUDENT PERFORMANCE EVALUATION

#### ENGINE PERFORMANCE

Student Name: \_\_\_\_\_

The performance evaluation is a required component of the Skill Certification process. Each student **must be evaluated** on the required performance standards. Performance standards may be completed and **evaluated anytime during the course**.

- Students should be aware of their progress throughout the course, so that they can concentrate on the objectives that need improvement.
- Students should be encouraged to repeat the objectives until they have performed at a minimum of a number 1 or 2 on the rating scale (moderately to highly competent level).
  - 1= highly competent Successfully demonstrated without supervision
  - 2= moderately competent Successfully demonstrated with limited supervision
  - 3= limited competence Demonstrated with close supervision
  - 4= not competent Demonstration requires direct instruction and supervision
- When a standard has been achieved at a minimum of 80% (moderately to highly competent level). "Y" (Y=YES) is recorded on the last line of that standard, on the performance evaluation sheet. If a student does not achieve a 1 or a 2 (moderately to highly competent level), then "N" (N=NO) is recorded on the last line of that standard.
- All performance standards **MUST** be completed and evaluated prior to the written test.
- The **teacher** will bubble in "A" on the answer sheet for item #81 for students who have achieved "Y" on **ALL** performance standards.
- The **teacher** will bubble in "B" on the answer sheet for item #81 for students who have **ONE or more** "N's" on the performance standards.
- The signed performance evaluation sheet(s) **MUST** be kept in the teachers' file for two years.
- A copy is also kept on file with the school's ATE Skill Certification testing coordinator for two years.

Students who achieve a 1 or a 2 (moderately to highly competent) on **ALL** performance standards and 80% on the written test will be issued an ATE Skill Certificate.

**470664-01 Students will be able to understand general shop safety**      1   2   3   4

- Pass the safety test with a score of 100%.
- Identify the different types and hazards of solvents used in automotive.
- Identify the different types, purposes, and hazards of automotive greases, oils, and additives.
- Identify precautions in the use, handling, and storage of various automotive solvents, cleaners, oils, greases, and additives.
- Identify the gasses encountered in the automotive field and the hazards they present.
- Identify the hazards and control of asbestos dust.
- Comply with safety rules for working with automotive chemicals (MSDS).

**The instructor must retain a copy of this Student Performance Evaluation for two years after the student has left the program.**

Instructor Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Student Signature: \_\_\_\_\_ Date: \_\_\_\_\_

School: \_\_\_\_\_

Revised 11 August, 2009

**470664- Students will be able to understand, identify, and properly diagnosis general engine systems.**      -1 -2 -3 -4

- Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction. P-1
- Identify and interpret engine performance concern; determine necessary action. P-1
- Research applicable vehicle and service information, such as engine management system operation, vehicle service history, service precautions, and technical service bulletins. P-1
- Locate and interpret vehicle and major component identification numbers (VIN, vehicle certification labels, and calibration decals). P-1
- Inspect engine assembly for fuel, oil, coolant, and other leaks; determine necessary action. P-2
- Diagnose abnormal engine noise or vibration concerns; determine necessary action. P-3
- Diagnose abnormal exhaust color, odor, and sound; determine necessary action. P-2
- Perform engine absolute (vacuum/boost) manifold pressure tests; determine necessary action. P-1
- Perform cylinder power balance test; determine necessary action. P-2
- Perform cylinder cranking compression tests; determine necessary action. P-1
- Perform cylinder leakage test; determine necessary action. P-1
- Diagnose engine mechanical, electrical, electronic, fuel, and ignition concerns; determine necessary action. P-1
- Prepare 4 or 5 gas analyzer; inspect and prepare vehicle for test, and obtain exhaust readings; interpret readings and determine necessary action. P-3
- Verify engine operating temperature; determine necessary action. P-1
- Perform cooling system pressure tests; check coolant condition; inspect and test radiator, pressure cap, coolant recovery tank, and hoses; perform necessary action. P-1
- Verify correct camshaft timing. P-1

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**470664-09 Students will be able to understand the importance of employability and work habits.**      -1 -2 -3 -4

- Integrity
- Punctuality
- Staying on task
- Productive team worker
- Leadership

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<del>470664- Students will be able to understand, identify, and properly diagnosis and repair computerized engine controls.</del>	<del>1</del>	<del>2</del>	<del>3</del>	<del>4</del>
Retrieve and record diagnostic trouble codes, OBD monitor status and freeze frame data; clear codes when applicable. P-1				
Diagnose the causes of emissions or driveability concerns with stored or active diagnostic trouble codes; obtain, graph, and interpret scan tool data. P-1				
Diagnose emissions or driveability concerns without stored diagnostic trouble codes; determine necessary action. P-1				
Check for module communication (including CAN/BUS systems) errors using a scan tool. P-2				
Inspect and test computerized engine control system sensors, powertrain/engine control module (PCM/ECM), actuators, and circuits using a graphing multi-meter (GMM)/digital storage oscilloscope (DSO); perform necessary action. P-1				
Access and use service information to perform step-by-step diagnosis. P-1				
Diagnose driveability and emissions problems resulting from malfunctions of interrelated systems (cruise control, security alarms, suspension controls, traction controls, A/C, automatic transmissions, non-OEM-installed accessories, or similar systems); determine necessary action. P-3				
Perform active tests of actuators using a scan tool; determine necessary action. P-1				
Describe the importance of running all OBD I monitors for repair verification. P-1				

<del>470664- Students will be able to understand, identify, and properly diagnosis and repair an ignition system.</del>	<del>1</del>	<del>2</del>	<del>3</del>	<del>4</del>
Diagnose ignition system related problems such as no-starting, hard starting, engine misfire, poor driveability, spark knock, power loss, poor mileage, and emissions concerns; determine necessary action. P-1				
Inspect and test ignition primary and secondary circuit wiring and solid state components; test ignition coil(s); perform necessary action. P-1				
Inspect and test crankshaft and cam shaft position sensor(s); perform necessary action. P-1				
Inspect, test, and/or replace ignition control module, powertrain/engine control module; reprogram as necessary. P-2				

<del>470664- Students will be able to understand, identify, and properly diagnosis and repair fuel, air induction, and exhaust systems.</del>	<del>1</del>	<del>2</del>	<del>3</del>	<del>4</del>
Diagnose hot or cold no-starting, hard starting, poor driveability, incorrect idle speed, poor idle, flooding, hesitation, surging, engine misfire, power loss, and stalling, poor mileage, dieseling, and emissions problems; determine necessary action. P-1				
Check fuel for contaminants and quality; determine necessary action. P-2				
Inspect and test fuel pumps and pump control systems for pressure, regulation, and volume; perform necessary action. P-1				
Replace fuel filters. P-1				
Inspect throttle body, air induction system, intake manifold and gaskets for vacuum leaks and/or unmetered air. P-2				
Inspect and test fuel injectors. P-1				
Verify idle control operation. P-1				
Inspect the integrity of the exhaust manifold, exhaust pipes, muffler(s), catalytic converter(s), resonator(s), tail pipe(s), and heat shield(s); perform necessary action. P-1				
Perform exhaust system back-pressure test; determine necessary action. P-1				
Test the operation of turbocharger/supercharger systems; determine necessary action. P-3				

<del>470664- Students will be able to understand, identify, and properly diagnosis and repair emission control systems.</del>	<del>1</del>	<del>2</del>	<del>3</del>	<del>4</del>
Diagnose oil leaks, emissions, and driveability problems caused by the positive crankcase ventilation (PCV) system; determine necessary action. P-2				
Inspect, test and service positive crankcase ventilation (PCV) filter/breather cap, valve, tubes, orifices, and hoses; perform necessary action. P-2				
Diagnose emissions and driveability concerns caused by the exhaust gas recirculation (EGR) system; determine necessary action. P-1				
Inspect, test, service and replace components of the EGR system, including EGR tubing, exhaust passages, vacuum/pressure controls, filters and hoses; perform necessary action. P-1				
Inspect and test electrical/electronic sensors, controls, and wiring of exhaust gas recirculation (EGR) systems; perform necessary action. P-2				
Diagnose emissions and driveability concerns caused by the secondary air injection and catalytic converter systems; determine necessary action. P-2				
Inspect and test mechanical components of secondary air injection systems; perform necessary action. P-3				
Inspect and test electrical/electronically-operated components and circuits of air injection systems; perform necessary action. P-3				
Inspect and test catalytic converter efficiency. P-1				
Diagnose emissions and driveability concerns caused by the evaporative emissions control system; determine necessary action. P-1				
Inspect and test components and hoses of evaporative emissions control system; perform necessary action. P-1				
Interpret diagnostic trouble codes (DTCs) and scan tool data related to the emissions control system; determine necessary action. P-1				

<del>470664- Students will be able to understand, identify, and properly complete an engine-related service.</del>	<del>1</del>	<del>2</del>	<del>3</del>	<del>4</del>
Adjust valves on engines with mechanical or hydraulic lifters. P-1				
Remove and replace timing belt; verify correct camshaft timing. P-1				
Remove and replace thermostat and gasket/seal. P-1				
Inspect and test mechanical/electrical fans, fan clutch, fan shroud/ducting, air dams, and fan control devices; perform necessary action. P-1				
Perform common fastener and thread repairs, to include: remove broken bolt, restore internal and external threads, and repair internal threads with thread insert. P-1				
Perform engine oil and filter change. P-1				
Identify hybrid vehicle internal combustion engine service precautions. P-3				

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