ENGINE REPAIR SPECIALIST
PROFILE OF TRAINING MASTERY

Instructor _____ Date _____

Program _____

Grade _____ School _____

Name _____ Soc. Sec. No. _____

Address _____ Phone _____

In Case of Emergency, Contact _____

Address _____ Phone _____

Allergies/Disabilities that might require special accommodation for training (please specify) _____

The above information can be used for school records and/or to ensure safety of students. This confidential information is not to be released to employers or the general public.

Date of Enrollment ___ - ___ - ___ Total Class Hours _____ Total Hours Absent _____

Date of Withdrawal ___ - ___ - ___ Total On-the-Job Training Hours _____ Total Hours Tardy _____

Date of Completion ___ - ___ - ___ Total Lab Hours _____

ON-THE-JOB TRAINING/WORK EXPERIENCE

Duration of Employment _____ Job Title _____ Supervisor's Name _____

Address of Employer _____ Phone _____

Duration of Employment _____ Job Title _____ Supervisor's Name _____

Address of Employer _____ Phone _____

Use of This Document

This document can be used to record information about the student and skills mastered. This information is useful in documenting student progress during training and in providing information about the student's qualifications to potential employers and/or for entry into advanced training programs. Instructors using these materials are authorized to reproduce this document as required for use in their training programs.

CIMC
Curriculum and Instructional Materials Center, Oklahoma Department of Career and Technology Education
1500 West Seventh Avenue, Stillwater, Oklahoma 74074-4364 1-800-654-4502 Fax 405-743-5154

SPECIFIC JOB COMPETENCIES

Instructor: As each competency is mastered, place your initials and the date in the blank on the left. This will verify that the student can perform the skill with a minimum of supervision.

Date/Initials

UNIT 1 — SERVICING BATTERIES AND STARTING SYSTEMS

1. Match the names of engine systems to descriptions of their functions.
2. Identify the differences between gasoline engines and diesel engines.
3. Match the names of the parts of a starting system to an illustration.
4. List types and ratings of batteries.
5. Match the names of the parts of a starter to an illustration.
6. Diagnose battery and starting system problems. (Assignment Sheet)
7. Clean and service a battery. (Job Sheet 1)
8. Perform a battery load test. (Job Sheet 2)
9. Perform a state-of-charge test on a conventional battery. (Job Sheet 3)
10. Slow-charge a battery. (Job Sheet 4)
11. Jump start a vehicle with jumper cables and a booster battery or charger. (Job Sheet 5)
12. Inspect, test, and replace starter relays, solenoids, and circuits. (Job Sheet 6)
13. Test, remove, and replace a starter. (Job Sheet 7)
14. _____

Pretest Score (%) _____
Post Test Score (%) _____
Modified Gains Score (%) _____

UNIT 2 — SERVICING IGNITION SYSTEMS

1. Match the names of components of ignition systems to illustrations.
2. Match the names of ignition system components to descriptions of their functions.
3. Arrange the steps of ignition system operation in order.
4. Identify primary and secondary circuit ignition system components.
5. Match the names of the parts of a distributor to an illustration.
6. Match the names of the parts of an ignition coil to an illustration.
7. Match the names of the parts of a spark plug to an illustration.
8. Evaluate spark plug condition. (Assignment Sheet 1)
9. Diagnose no-starting, hard starting, and engine misfire. (Assignment Sheet 2)
10. Inspect, test, repair, and replace the ignition system primary circuit wiring and components. (Job Sheet 1)
11. Inspect, test, adjust, service, repair, and replace the ignition points and condenser. (Job Sheet 2)
12. Inspect, test, and service the distributor. (Job Sheet 3)
13. Inspect, test, service, repair, and replace the ignition system secondary circuit wiring and components. (Job Sheet 4)
14. Inspect, test, and replace the ignition coil. (Job Sheet 5)
15. Check and adjust the ignition system timing and timing advance. (Job Sheet 6)
16. Inspect, test, and replace the electronic ignition system pick-up sensor or trigger devices. (Job Sheet 7)
17. Inspect, test, and replace the electronic ignition system control unit module. (Job Sheet 8)
18. _____

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UNIT 3 — SERVICING FUEL SYSTEMS

1. List the names of parts of fuel delivery systems to illustrations.
2. Match the names of fuel system components to descriptions of their functions.
3. Label the parts of a fuel induction system.
4. List three types of fuel pumps.
5. Identify types of fuel filters from illustrations.
6. Inspect, service, and replace air filters and filter housings. (Job Sheet 1)
7. Inspect, service, and replace fuel filters. (Job Sheet 2)
8. Inspect, test, and replace fuel pumps and pump controls. (Job Sheet 3)
9. Inspect, clean, replace, and adjust carburetor components. (Job Sheet 4)
10. _____

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UNIT 4 — SERVICING EXHAUST SYSTEMS

1. Match the names of exhaust system components to descriptions of their functions.
2. Identify two types of catalytic converters from illustrations.
3. Match the names of the parts of an early fuel evaporation (EFE) system to an illustration.
4. Match the names of the parts of a turbocharger to an illustration.
5. Match the names of the parts of a turbocharger to descriptions of their functions.
6. List the names of the parts of a closed positive crankcase ventilation (PCV) system.
7. Perform a backpressure test on an exhaust system. (Job Sheet 1)
8. Inspect, service, and replace exhaust system components located in the engine compartment. (Job Sheet 2)
9. Inspect, service, and replace exhaust system components located outside the engine compartment. (Job Sheet 3)
10. Inspect, test, service, and replace positive crankcase ventilation (PCV) system components. (Job Sheet 4)
11. Inspect and repair a turbocharger. (Job Sheet 5)
12. _____

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UNIT 5 — SERVICING ENGINE COOLING SYSTEMS

1. List the functions of a cooling system.
2. Match the names of the components of an engine cooling system to an illustration.
3. Match the names of cooling system components to descriptions of their functions.
4. Match the names of the parts of radiators to illustrations.
5. Match the names of the parts of a radiator cap assembly to an illustration.
6. Match the names of the parts of a radiator cap assembly to descriptions of their functions.
7. Identify cooling system fans.
8. Match the names of the parts of a water pump to an illustration.
9. Match the names of the parts of a water pump to descriptions of their functions.
10. Match the names of the parts of a thermostat to an illustration.
11. List the purposes of antifreeze.
12. Diagnose cooling system problems. (Assignment Sheet)
13. Perform cooling system tests. (Job Sheet 1)
14. Inspect, replace, and adjust drive belts and pulleys. (Job Sheet 2)
15. Inspect and replace engine cooling and heater system hoses. (Job Sheet 3)
16. Inspect, test, and replace a thermostat, by-pass, and housing. (Job Sheet 4)
17. Inspect coolant and drain, flush, refill, and bleed the cooling system. (Job Sheet 5)
19. _____

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UNIT 6 — SERVICING ENGINE LUBRICATION SYSTEMS

1. Match the names of the parts of an engine lubrication system to an illustration.
2. Match the names of the parts of a lubrication system to descriptions of their functions.

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3. List the purposes of motor oil.
4. Match the names of the parts of an oil pump to an illustration.
5. Identify types of oil pumps from illustrations.
6. Match the names of the parts of an oil filter to an illustration.
7. Identify types of oil pressure sending units from illustrations.
8. Diagnose lubrication system problems. (Assignment Sheet)
9. Inspect, measure, and replace an oil pump. (Job Sheet 1)
10. Inspect, test, repair, and replace auxiliary oil coolers. (Job Sheet 2)
11. Inspect, test, and replace oil pressure sending units. (Job Sheet 3)
12. _____

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UNIT 7 — DIAGNOSING ENGINE CONDITION

1. List safety hazards for engine diagnosis and repair.
2. List common causes of engine mechanical problems.
3. Match engine diagnostic tests to their descriptions.
4. Verify customer complaints. (Assignment Sheet 1)
5. Analyze engine noises. (Assignment Sheet 2)
6. Diagnose the cause of excessive oil consumption, unusual engine exhaust color, odor, and sound. (Assignment Sheet 3)
7. Interpret cylinder compression test results. (Assignment Sheet 4)
8. Interpret vacuum gauge readings. (Assignment Sheet 5)
9. Inspect the engine assembly for leaks. (Job Sheet 1)
10. Perform engine vacuum tests. (Job Sheet 2)
11. Perform cylinder power balance tests. (Job Sheet 3)
12. Perform cylinder compression tests. (Job Sheet 4)
13. Perform cylinder leakage tests. (Job Sheet 5)
14. Perform oil pressure tests. (Job Sheet 6)
15. _____

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UNIT 8 — SERVICING CYLINDER HEADS AND VALVE TRAINS

1. Match types of engines to their characteristics.
2. Identify types of rocker arms from illustrations.
3. Match the names of the parts of a valve to an illustration.
4. Identify types of valve guides from illustrations.
5. Match types of valve stem seals to their descriptions.
6. Match the names of the parts of a valve spring assembly to an illustration.
7. Match the names of the parts of a camshaft to an illustration.
8. Identify types of lifters from illustrations.
9. Disassemble and inspect the cylinder head and valve train. (Job Sheet 1)
10. Inspect, test, and replace valve springs. (Job Sheet 2)
11. Inspect valve spring retainers, rotators, locks, and valve lock grooves. (Job Sheet 3)
12. Inspect and replace valve stem seals. (Job Sheet 4)
13. Inspect, recondition, or replace valve guides. (Job Sheet 5)
14. Inspect, resurface, and replace valves. (Job Sheet 6)
15. Inspect and service valve seats. (Job Sheet 7)
16. Check and service valve spring assemblies and stems. (Job Sheet 8)
17. Inspect, repair, or replace pushrods, rocker arms, rocker arm pivots, and shafts. (Job Sheet 9)
18. Inspect, test, and replace hydraulic or mechanical lifters. (Job Sheet 10)
19. Inspect and measure the camshaft, camshaft journals, and lobes on an overhead cam engine. (Job Sheet 11)
20. _____

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UNIT 9 — REMOVING ENGINES AND PREPARING FOR DISASSEMBLY

1. Label the components of a rear-wheel drivetrain.
2. Match the names of the components of a front-wheel drivetrain to an illustration.
3. List variables which influence the method of engine removal.
4. List safety rules for engine removal.
5. List accessory equipment which may need to be disconnected before the engine can be removed.
6. Identify special engine removal tools from illustrations.
7. Remove an engine from a rear-wheel drive vehicle. (Job Sheet 1)
8. Remove an engine from a front-wheel drive vehicle. (Job Sheet 2)
9. Prepare an engine for disassembly. (Job Sheet 3)
10. _____

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UNIT 10 — DISASSEMBLING AND SERVICING ENGINE BLOCKS

1. Match the names of engine block parts to an illustration.
2. Match the names of engine block parts to descriptions of their functions.
3. Label the types of engine bearings and match the names of their parts to illustrations.
4. Match terms associated with bearings to their definitions.
5. Match the names of the parts of a piston to an illustration.
6. Identify types and styles of piston rings on a vehicle or in a service publication.
7. Match the names of the parts of a connecting rod assembly to an example of the component on a vehicle or in a service publication.
8. List the parts of a crankshaft.
9. Match the names of the parts of flywheels and flexplates to illustrations.
10. Match the names of the parts of a camshaft to an illustration.
11. Identify piston and bearing wear patterns. (Assignment Sheet)
12. Inspect and replace pans, covers, gaskets, and seals. (Job Sheet 1)
13. Measure camshaft timing and inspect a timing chain, belt, and/or gears. (Job Sheet 2)
14. Remove cylinder wall ridges. (Job Sheet 3)
15. Disassemble an engine and clean the engine block. (Job Sheet 4)
16. Inspect the engine block. (Job Sheet 5)
17. Inspect and measure cylinder walls. (Job Sheet 6)
18. Hone and clean cylinder walls. (Job Sheet 7)
20. Inspect and measure camshaft bearings. (Job Sheet 9)
21. Inspect and service a crankshaft. (Job Sheet 10)
22. Inspect and measure main and connecting rod bearings. (Job Sheet 11)
23. Inspect rod alignment and bearing bore condition. (Job Sheet 12)
24. Inspect, measure, service, or replace pistons, rings, piston pins, and pin bushings. (Job Sheet 13)
25. Inspect, repair, or replace a crankshaft vibration damper. (Job Sheet 14)
26. Inspect a crankshaft flange and a flywheel/flexplate and measure flywheel runout. (Job Sheet 15)
27. Inspect, remove, and replace a crankshaft pilot bearing/bushing. (Job Sheet 16)
28. Remove and inspect auxiliary shafts and support bearings. (Job Sheet 17)
29. Inspect and measure camshaft journals and lobes on an internal cam engine. (Job Sheet 18)
30. _____

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UNIT 11 — ASSEMBLING AND INSTALLING ENGINES

_____ 1. Make cylinder head and valve train measurements. (Job Sheet 1)
_____ 2. Make engine block measurements. (Job Sheet 2)
_____ 3. Install the camshaft and bearings. (Job Sheet 3)
_____ 4. Install the crankshaft, bearings, timing gears, and timing cover. (Job Sheet 4)
_____ 5. Install the pistons and connecting rod assemblies. (Job Sheet 5)
_____ 6. Install the oil pump, pickup screen, and oil pan. (Job Sheet 6)
_____ 7. Install the cylinder head, intake manifold, and exhaust manifold. (Job Sheet 7)
_____ 8. Install the engine accessory components. (Job Sheet 8)
_____ 9. Install the engine in a rear-wheel drive vehicle. (Job Sheet 9)
_____ 10. Install the engine in a front-wheel drive vehicle. (Job Sheet 10)
_____ 11. _____

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