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Student Name

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High School or Vocational Center

**COMPETENCY RECORD FOR ARTICULATION**

**Baker College**

Please check below each skill the student has mastered with a minimum of 80 percent accuracy or with an A or B grade.

**DSL 101: DIESEL ENGINE THEORY**

| <b>Task</b>   | <b>Satisfactory</b> | <b>Unsatisfactory</b> |
|---|---------------------|-----------------------|
| 1. Inspect fuel, oil, and coolant levels, condition, and consumption; determine needed action   |                     |                       |
| 2. Diagnose causes of engine fuel, oil, coolant, air, and other leaks; determine needed action  |                     |                       |
| 3. Remove, clean, inspect for visible damage and replace cylinder head(s) assembly.   |                     |                       |
| 4. Clean and inspect threaded holes, studs, and bolts for serviceability; determine needed action   |                     |                       |
| 5. Inspect cylinder head for cracks/damage; check mating surfaces for warpage; check condition of passages; inspect core/expansion and gallery plugs; determine needed action |                     |                       |
| 6. Adjust valve clearance   |                     |                       |
| 7. Remove, inspect, service, and install pans, covers, vents, gaskets, seals, and wear rings  |                     |                       |
| 8. Test engine oil pressure and check operation of pressure sensor, gauge, and/ or sending unit; determine needed action.   |                     |                       |
| 9. Determine proper lubricant and perform oil and filter change.  |                     |                       |
| 10. Check engine coolant type, level, condition, and consumption; determine needed action.  |                     |                       |
| 11. Inspect and reinstall/ replace pulleys, tensioners and  |                     |                       |

| <b>Task</b>  | <b>Satisfactory</b> | <b>Unsatisfactory</b> |
|--|---------------------|-----------------------|
| drive belts; adjust drive belts and check alignment.   |                     |                       |
| 12. Test coolant type, level, condition, and consumption; determine needed action.   |                     |                       |
| 13. Inspect water pump and hoses; replace as needed.   |                     |                       |
| 14. Inspect, clean, and pressure test radiator, pressure cap, tank(s) and recovery systems; determine needed action.   |                     |                       |
| 15. Check fuel system for air; determine needed action; prime and bleed fuel system; check primer pump.  |                     |                       |
| 16. Inspect and adjust valve bridges (crossheads) and guides; perform needed action.   |                     |                       |
| 17. Clean, inspect, and measure cylinder walls or liners for wear and damage; determine needed action.   |                     |                       |
| 18. Clean and inspect crankshaft for surface cracks and journal damage; check condition of oil passages; check passage plugs; measure journal diameter; determine needed action. |                     |                       |
| 19. Inspect main bearings for wear patterns and damage; replace as needed check bearing clearances; check and adjust end play.   |                     |                       |
| 20. Inspect connecting rod and bearings for wear pattern; measure pistons, pins, retainers, and bushings perform needed action.  |                     |                       |
| 21. Determine piston-to-cylinder wall clearance; check ring-to-groove clearance and end gap; install rings on pistons.   |                     |                       |
| 22. Assemble pistons and connecting rods; install in block; install rod bearings and check clearances.   |                     |                       |
| 23. Inspect thermostat(s), by-passes, housing(s) and seals; replace as needed.   |                     |                       |
| 24. Perform cylinder compression test; determine needed action.  |                     |                       |
| 25. Disassemble cylinder head and inspect valves, guides, seats, springs, retainers, rotators, locks, and seals; determine needed action.  |                     |                       |
| 26. Measure valve head height relative to deck and valve face-to-seat contact; determine needed action.  |                     |                       |
| 27. Inspect injector sleeves and seals; measure injector tip   |                     |                       |

| <b>Task</b>   | <b>Satisfactory</b> | <b>Unsatisfactory</b> |
|---|---------------------|-----------------------|
| or nozzle protrusion; perform needed action.  |                     |                       |
| 28. Reassemble cylinder head.   |                     |                       |
| 29. Disassemble, clean, and inspect engine block for cracks/ damage; measure mating surfaces for warpage; check condition of passages, core/ expansion plugs and gallery plugs; inspect threaded holes, studs, dowel pins, and bolts for serviceability; determine needed action. |                     |                       |
| 30. Inspect, measure, and replace/ reinstall in-block camshaft; measure/ adjust end play.   |                     |                       |
| 31. Inspect, install, and time gear train; measure gear backlash; determine needed action.  |                     |                       |
| 32. Inspect intake manifold, gaskets, and connections; replace as needed.   |                     |                       |
| 33. Evaluate the characteristics and ratings of engine oil.   |                     |                       |
| 34. Appraise the safe use of tools and shop equipment.  |                     |                       |
| 35. Demonstrate the ability to complete the safety test with 100% accuracy.   |                     |                       |

Teacher signature \_\_\_\_\_ Date \_\_\_\_\_