

Student Name _____

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 241: HEAVY DUTY HEATING/AIR-CONDITIONING

Task	Satisfactory	Unsatisfactory
A. HVAC Systems		
1. Verify the need for service or repair of HVAC systems based on unusual operating noises; determine needed action.		
2. Verify the need for service or repair of HVAC systems based on unusual visual, smell, and touch conditions; determine needed action.		
3. Identify system type and components (cycling clutch orifice tube – CCOT, Expansion valve) and conduct performance test(s) on HVAC systems; determine needed action.		
4. Retrieve diagnostic codes; determine needed action.		
B. A/C System and Components		
1. A/C System – General		
5. Identify causes of temperature control problems in the A/C system; determine needed action.		
6. Identify refrigerant and lubricant types; check for contamination; determine needed action.		
7. Identify A/C system problems indicated by pressure gauge and temperature readings; determine needed action.		
8. Identify A/C system problems indicated by		

Task	Satisfactory	Unsatisfactory
visual, audible, smell, and touch procedures; determine needed action.		
9. Perform A/C system leak test; determine needed action.		
10. Recover, evacuate, and recharge A/C system using appropriate equipment.		
11. Identify contaminated A/C system components and hoses; determine needed action.		
2. Compressor and Clutch		
12. Identify A/C system problems that cause protection devices (pressure, thermal, and electronic) to interrupt system operation; determine needed action.		
13. Inspect, test, and replace A/C system pressure, thermal, and electronic protection devices.		
14. Inspect and replace A/C compressor drive belts, pulleys, and tensioners; Adjust belt tension and check alignment.		
15. Inspect, test, service, or replace A/C compressor clutch components or assembly.		
16. Inspect and correct A/C compressor lubricant level (if applicable).		
17. Inspect, test, or replace A/C compressor.		
18. Inspect, repair, or replace A/C compressor mountings and hardware.		
3. Evaporator, Condenser, and Related Components		
19. Correct system lubricant level when replacing the evaporator, condenser, receiver/drier or accumulator/drier, and hoses.		
20. Inspect A/C system hoses, lines, filters, fittings, and seals; determine needed action.		
21. Inspect A/C condenser for proper air flow.		
22. Inspect and test A/C system condenser and mountings; determine needed action.		

Task	Satisfactory	Unsatisfactory
23. Inspect and replace receiver/drier or accumulator/drier.		
24. Inspect and test cab/sleeper refrigerant solenoid, expansion valve(s); check placement of thermal bulb (capillary tube); determine needed action.		
25. Remove and replace orifice tube.		
26. Inspect and test cab/sleeper evaporator core; determine needed action.		
27. Inspect, clean, or repair evaporator housing and water drain; inspect and service/replace evaporator air filter.		
28. Identify and inspect A/C system service ports (gauge connections); determine needed actions.		
29. Identify the cause of system failures resulting in refrigerant loss from the A/C system high pressure relief device; determine needed action.		
C. Heating and Engine Cooling Systems		
30. Identify causes of outlet air temperature control problems in the HVAC system; determine needed action.		
31. Identify window fogging problems; determine needed action.		
32. Perform engine cooling system tests for leaks, protection level, contamination, coolant level, coolant type, temperature, and conditioner concentration; determine needed action.		
33. Inspect engine cooling and heating system hoses, lines, and clamps; determine needed action.		
34. Inspect and test radiator, pressure cap, and coolant recovery system (surge tank); determine needed action.		
35. Inspect water pump for leaks and bearing play; determine needed action.		
36. Inspect and test thermostats, by-passes, housings, and seals; determine needed repairs.		
37. Recover, flush, and refill with recommended coolant/additive package;		

Task	Satisfactory	Unsatisfactory
bleed cooling system.		
38. Inspect thermostatic cooling fan system (hydraulic, pneumatic, and electronic) and fan shroud; replace as needed.		
39. Inspect and test heating system coolant control valve(s) and manual shut-off valves; determine needed action.		
40. Inspect and flush heater core; determine needed action.		
D. Operating Systems and Related Controls		
1. Electrical		
41. Identify causes of HVAC electrical control system problems; determine needed action.		
42. Inspect and test HVAC blower motors, resistors, switches, relays, modules, wiring, and protection devices; determine needed action.		
43. Inspect and test, A/C compressor clutch relays, modules, wiring, sensors, switches, diodes, and protection devices; determine needed action.		
44. Inspect and test A/C related electronic engine controls systems; determine needed action.		
45. Inspect and test engine cooling/condenser fan motors, relays, modules, switches, sensors, wiring, and protection devices; determine needed action.		
46. Inspect and test electric actuator motors, relays/modules, switches, sensors, wiring, and protection devices; determine needed action.		
47. Inspect and test HVAC system electrical/electronic control panel assemblies; determine needed action.		
2. Air/Mechanical		
48. Identify causes of HVAC air and mechanical control problems; determine needed action.		
49. Inspect and test HVAC system air and mechanical control panel assemblies; determine needed action.		
50. Inspect, test, and adjust HVAC system air and mechanical control cables and linkages; determine needed action.		

Task	Satisfactory	Unsatisfactory
51. Inspect and test HVAC system actuators and hoses; determine needed action.		
52. Inspect, test, and adjust HVAC system ducts, doors and outlets; determine needed action.		
E. Refrigerant Recovery, Recycling, and Handling		
NOTE: Tasks 53 through 57 should be accomplished in accordance with appropriate EPA regulations and SAE “J” standards.		
53. Maintain and verify correct operation of certified equipment.		
54. Identify and recover A/C system refrigerant.		
55. Recycle or properly dispose of refrigerant.		
56. Handle, label, and store refrigerant.		
57. Test recycled refrigerant for non-condensable gases.		

Teacher signature _____ Date _____