HVAC: Heating, Ventilation, and Engine Cooling Systems Diagnosis and Repair

Student/intern information:

Name _____ Date _____ Class _____

Vehicle used for this activity:

Year _____ Make _____ Model _____

Odometer _____ VIN _____

Time off _____

Time on _____

Total time _____

Learning Objective/Task	CDX Tasksheet Number	2013 MLR NATEF Reference Number; Priority Level	2013 AST NATEF Reference Number; Priority Level	2013 MAST NATEF Reference Number; Priority Level
• Diagnose temperature control problems in the heater/ventilation system; determine necessary action.	C362			7C3; P-2
• Inspect engine cooling and heater system hoses; perform necessary action.	C364	7C1; P-1	7C1; P-1	7C1; P-1
• Inspect and test heater control valve(s); perform necessary action.	C370		7C2; P-2	7C2; P-2
• Inspect and test A/C-heater blower motors, resistors, switches, relays, wiring, and protection devices; perform necessary action.	C373		7D1; P-1	7D1; P-1
• Determine procedure to remove, inspect, and reinstall heater core.	C864		7C3; P-2	7C4; P-2

Materials Required

- Vehicle or simulator
- Cooling system pressure tester
- Infrared temperature gun
- DVOM
- Drain pan
- Hose slitter

Some Safety Issues to Consider

- Open the radiator cap (or any other part of the cooling system) only with the engine cold. Opening a radiator cap on a warm or hot engine could cause severe burns.
- Electric fans can turn on at any time. Keep hands and fingers away.
- When running any vehicles in the shop, make sure you use the shop's exhaust ventilation system to discharge all exhaust gas safely outside.
- Extreme caution must be exercised when working around rotating components.
- A hose slitter is handy for removing hoses from radiators and heater cores without damaging the metal tubes, but can cut you if not used carefully.

- Refrigerant can cause serious damage if it comes in contact with a person's unprotected skin and eyes.
- When operating, the air conditioning system is normally subject to very high pressure in the system. Extreme caution must be exercised when working on an operating system.
- Comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.

Performance Standard

0—No exposure: No information or practice provided during the program; complete training required

1—Exposure only: General information provided with no practice time; close supervision needed; additional training required

2—Limited practice: Has practiced job during training program; additional training required to develop skill

3—Moderately skilled: Has performed job independently during training program; limited additional training may be required

4—Skilled: Can perform job independently with no additional training