

HVAC: Operating Systems and Related Controls Diagnosis and Repair

Student/intern information:

Name _____ Date _____ Class _____

Vehicle used for this activity:

Year _____ Make _____ Model _____

Odometer _____ VIN _____

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
• Check operation of automatic or semi-automatic heating, ventilation, and A/C (HVAC) control systems; determine necessary action.	C866		7D8; P-2	7D8; P-2
• Using a scan tool, observe and record related HVAC data and trouble codes.	C566		7A9; P-3	7A9; P-3
• Diagnose A/C system conditions that cause the protection devices (pressure, thermal, and PCM) to interrupt system operation; determine necessary action.	C350			7B11; P-2
• Diagnose A/C compressor clutch control systems; determine necessary action.	C374		7D2; P-2	7D2; P-2
• Diagnose malfunctions in the vacuum, mechanical, and electrical components and controls of the heating, ventilation, and A/C (HVAC) system; determine necessary action.	C835		7D3; P-2	7D3; P-2
• Inspect and test A/C-heater control panel assembly; determine necessary action.	C376		7D4; P-3	7D4; P-3
• Inspect and test A/C-heater control cables, motors, and linkages; perform necessary action.	C865		7D5; P-3	7D5; P-3
• Inspect A/C-heater ducts, doors, hoses, cabin filters, and outlets; perform necessary action.	C378	7D1; P-1	7D6; P-3	7D6; P-3

Time off _____

Time on _____

Total time _____

Materials Required

- Appropriate air conditioning manifold gauge set including service hoses
- Air conditioning service station and recovery/recycling equipment as necessary
- Refrigerant leak detecting equipment
- Refrigerant identifier
- Appropriate thermometers
- Infrared temperature gun/thermocouple
- DVOM
- Hand vacuum pump

Some Safety Issues to Consider

- 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.
- Extreme caution must be exercised when working around rotating components.
- When running any vehicles in the shop, make sure you use the shop's exhaust ventilation system to discharge all exhaust gas safely outside.
- Diagnosis of this fault may require test-driving the vehicle on the school grounds. Attempt this task only with full permission from your instructor and follow all the guidelines exactly.
- 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