

Automotive Service Technician Program

Competency Profile - Heating and Air Conditioning-A7

Student Information

Last Name
First Name
Telephone

Directions: Evaluate the student according to the rating scale to indicate the degree of competency. The rating for each competency should indicate employability readiness, rather than the grades given in class.

2012 NATEF Standards for Automotive Service Technology

Student Rating Scale:

- 1 = NO EXPOSURE - no experience or knowledge in this area
- 2 = KNOWLEDGE - can recall, explain, or has been exposed to this information
- 3 = LIMITED SKILLED - requires instruction and close supervision
- 4 = MODERATELY SKILLED - can perform job completely with limited supervision
- 5 = SKILLED - can work independently with no supervision

Score *A. General: A/C System Diagnosis and Repair*

Date Completed

	1. Identify and interpret heating and air conditioning problems; determine necessary action. P1	
	2. Research applicable vehicle and service information, vehicle service history, service precautions, and technical service bulletins.	
	3. Performance test A/C system; identify problems. P1	
	4. Identify abnormal operating noises in the A/C system; determine necessary action. P2	
	5. Identify refrigerant type; select and connect proper gauge set; record temperature and pressure readings. P1	
	6. Leak test A/C system; determine necessary action. P1	
	7. Inspect condition of refrigerant oil removed from A/C system; determine necessary action. P2	
	8. Determine recommended oil and oil capacity for system application. P1	
	9. Using a scan tool, observe and record related HVAC data and trouble codes. P3	

B. Refrigeration System Component Diagnosis and Repair

	1. Inspect and replace A/C compressor drive belts, pulleys, and tensioners; determine necessary action. P1	
	2. Inspect, test, and/or replace A/C compressor clutch components and/or assembly; check compressor clutch air gap; adjust as needed. P2	
	3. Remove, inspect, and reinstall A/C compressor and mountings; determine recommended oil quantity. P2	
	4. Identify hybrid vehicle A/C system electrical circuits and service/safety precautions. P2	
	5. Determine need for an additional A/C system filter; perform necessary action. P3	
	6. Remove and inspect A/C system mufflers, hoses, lines, fittings, O-rings, seals, and service valves; perform necessary action. P2	
	7. Inspect A/C condenser for airflow restrictions; perform necessary action. P1	
	8. Remove, inspect, and reinstall receiver/drier or accumulator/drier; determine recommended oil quantity. P2	
	9. Remove, inspect, and install expansion valve or orifice (expansion) tube. P1	
	10. Inspect evaporator housing water drain; perform necessary action. P1	

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C. Heating, Ventilation, and Engine Cooling Systems Diagnosis and Repair

1. Inspect engine cooling and heater systems hoses; perform necessary action. P1	
2. Inspect and test heater control valve(s); perform necessary action. P2	

D. Operating Systems and Related Controls Diagnosis and Repair

1. Inspect and test A/C-heater blower motors, resistors, switches, relays, wiring, and protection devices; perform necessary action. P1	
2. Diagnose A/C compressor clutch control systems; determine necessary action. P2	
3. Diagnose malfunctions in the vacuum, mechanical, and electrical components and controls of the heating, ventilation, and A/C (HVAC) system; determine necessary action. P2	
4. Inspect and test A/C-heater control panel assembly; determine necessary action. P3	
5. Inspect and test A/C-heater control cables, motors, and linkages; perform necessary action. P3	
6. Inspect A/C-heater ducts, doors, hoses, cabin filters, and outlets; perform necessary action. P1	
7. Identify the source of A/C system odors. P2	
8. Check operation of automatic or semi-automatic heating, ventilation, and air-conditioning (HVAC) control systems; determine necessary action. P2	

E. Refrigerant Recovery, Recycling, and Handling

1. Perform correct use and maintenance of refrigerant handling equipment according to equipment manufacturer's standards. P1	
2. Identify and recover A/C system refrigerant. P1	
3. Recycle, label, and store refrigerant. Pq1	
4. Evacuate and charge A/C system; add refrigerant oil as required. P1	