

## AER 0759 - Automotive Heating and Air Conditioning

2013 NATEF JOB TASKS COMPLETION REQUIREMENT: **P1 - 95% P2 - 80% P3 - 50%**

Student Name: \_\_\_\_\_

### DETAILED COURSE CONTENT

#### AUTOMOTIVE HEATING AND AIR CONDITIONING TECHNICIAN

#### DEMONSTRATE PROFICIENCY IN A/C SYSTEM DIAGNOSIS AND REPAIR –

The student will be able to:

		P1	P2	P3	Level	Date	Textbook Ch CDX Task
VII-A-1	Identify and interpret heating and air conditioning problems; determine necessary action.						42: C341
VII-A-2	Research applicable vehicle and service information, vehicle service history, service precautions, and technical service bulletins.						42: C342
VII-A-3	Performance test A/C system; identify A/C problems.						42: C824
VII-A-4	Identify abnormal operating noises in the A/C system; determine necessary action.						42: C825
VII-A-5	Identify refrigerant type; select and connect proper gauge set; record temperature and pressure readings.						42: C650
VII-A-6	Leak test A/C system; determine necessary action.						42: C347
VII-A-7	Inspect the condition of refrigerant oil removed from A/C system; determine necessary action.						42: C651
VII-A-8	Determine recommended oil and oil capacity for system application.						42: C652
VII-A-9	Using a scan tool, observe and record related HVAC data and trouble codes.						43: C566

#### DEMONSTRATE PROFICIENCY IN REFRIGERATION SYSTEM COMPONENT

DIAGNOSIS AND REPAIR - The student will be able to:

VII-B-1	Inspect and replace A/C compressor drive belts, pulleys, and tensioners; determine necessary action.						42: C653
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### DEMONSTRATE PROFICIENCY IN REFRIGERATION SYSTEM COMPONENT

#### DIAGNOSIS AND REPAIR - continued

		P1	P2	P3	Level	Date	Textbook Ch CDX Task
VII-B-2	Inspect, test, service or replace A/C compressor clutch components and/or assembly; check compressor clutch air gap and adjust as needed.						42: C654
VII-B-3	Remove, inspect, and reinstall A/C compressor and mountings; determine required oil quantity.						42: C826
VII-B-4	Identify hybrid vehicle A/C system electrical circuits, service/safety precautions.						42: C827
VII-B-5	Determine need for an additional A/C system filter; perform necessary action.						42: C863
VII-B-6	Remove and inspect A/C system mufflers, hoses, lines, fittings, O-rings, seals, and service valves; perform necessary action.						42: C355
VII-B-7	Inspect A/C condenser for airflow restrictions; perform necessary action.						42: C356
VII-B-8	Remove, inspect, and reinstall receiver/drier or accumulator/drier; determine recommended oil quantity.						42: C829
VII-B-9	Remove, inspect, and install expansion valve or orifice (expansion) tube.						42: C873
VII-B-10	Inspect evaporator housing water drain; perform necessary action.						42: C830
VII-B-11	Determine procedure to remove and reinstall evaporator; determine required oil quantity.						42: C831

### DEMONSTRATE PROFICIENCY IN HEATING, VENTILATION, AND ENGINE

#### COOLING SYSTEMS DIAGNOSIS AND REPAIR - The student will be able to:

VII-C-1	Inspect engine cooling and heater system hoses and belts; perform necessary action.						46: C364
VII-C-2	Inspect and test heater control valve(s); perform necessary action.						46: C370
VII-C-3	Determine procedure to remove, inspect, and reinstall heater core.						46: C864

### DEMONSTRATE PROFICIENCY IN OPERATING SYSTEMS AND RELATED

#### CONTROLS DIAGNOSIS AND REPAIR – The student will be able to:

VII-D-1	Inspect and test A/C-heater blower motors, resistors, switches, relays, wiring, and protection devices; perform necessary action.						43: C373
VII-D-2	Diagnose A/C compressor clutch control systems; determine necessary action.						43: C374

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### DEMONSTRATE PROFICIENCY IN OPERATING SYSTEMS AND RELATED CONTROLS DIAGNOSIS AND REPAIR – continued

		P1	P2	P3	Level	Date	Textbook Ch CDX Task
VII-D-3	Diagnose malfunctions in the vacuum, mechanical, and electrical components and the electrical controls of the heating, ventilation, and A/C (HVAC) system; determine necessary action.						43: C385
VII-D-4	Inspect and test A/C-heater control panel assembly; determine necessary action.						43: C376
VII-D-5	Inspect and test A/C-heater control cables, motors, and linkages; perform necessary action.						43: C865
VII-D-6	Inspect A/C-heater ducts, doors, hoses, cabin filters and outlets; perform necessary action.						43: C378
VII-D-7	Identify the source of A/C system odors.						42: C655
VII-D-8	Check operation of automatic or semi-automatic heating, ventilation, and air-conditioning (HVAC) control systems; determine necessary action.						43: C866

### DEMONSTRATE PROFICIENCY IN REFRIGERANT RECOVERY, RECYCLING, AND HANDLING - The student will be able to:

VII-E-1	Perform correct use and maintenance of refrigerant handling equipment according to equipment manufacturer's standards.						42: C656
VII-E-2	Identify and recover A/C system refrigerant.						42: C836
VII-E-3	Recycle, label, and store refrigerant.						42: C657
VII-E-4	Evacuate and charge A/C system; add refrigerant oil as required.						42: C658

	P1	P2	P3
Tasks Completed	0	0	0
Total Tasks	17	14	4
% of Total Tasks	0	0	0