



HEATING AND AIR CONDITIONING

For every task in Heating and Air Conditioning, the following safety requirement must be strictly enforced:

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.

A. General: A/C System Diagnosis and Repair	Priority	Completed
1. Identify and interpret heating and air conditioning problems; determine necessary action.	P-1	
2. Research applicable vehicle and service information, vehicle service history, service precautions, and technical service bulletins.	P-1	
3. Performance test A/C system; identify problems.	P-1	
4. Identify abnormal operating noises in the A/C system; determine necessary action.	P-2	
5. Identify refrigerant type; select and connect proper gauge set; record temperature and pressure readings.	P-1	
6. Leak test A/C system; determine necessary action.	P-1	
7. Inspect condition of refrigerant oil removed from A/C system; determine necessary action.	P-2	
8. Determine recommended oil and oil capacity for system application.	P-1	
9. Using a scan tool, observe and record related HVAC data and trouble codes.	P-3	
B. Refrigeration System Component Diagnosis and Repair		
1. Inspect and replace A/C compressor drive belts, pulleys and tensioners; determine necessary action.	P-1	
2. Inspect, test, service or replace A/C compressor clutch components and/or assembly; check compressor clutch air gap; adjust as needed.	P-2	
3. Remove, inspect, and reinstall A/C compressor and mountings; determine recommended oil quantity.	P-2	
4. Identify hybrid vehicle A/C system electrical circuits and service/safety precautions.	P-2	



5. Determine need for an additional A/C system filter; perform necessary action.	P-3	
6. Remove and inspect A/C system mufflers, hoses, lines, fittings, O-rings, seals, and service valves; perform necessary action.	P-2	
7. Inspect A/C condenser for airflow restrictions; perform necessary action.	P-1	
8. Remove, inspect, and reinstall receiver/drier or accumulator/drier; determine recommended oil quantity.	P-2	
9. Remove, inspect, and install expansion valve or orifice (expansion) tube.	P-1	
10. Inspect evaporator housing water drain; perform necessary action.	P-1	
11. Diagnose A/C system conditions that cause the protection devices (pressure, thermal, and PCM) to interrupt system operation; determine necessary action.	P-2	
12. Determine procedure to Remove and reinstall evaporator; determine require oil quantity.	P-2	
13. Remove, inspect, and reinstall condenser; determine require oil quantity.	P-2	
C. Heating, Ventilation, and Engine Cooling Systems Diagnosis and Repair.		
1. Inspect cooling and heater systems hoses; perform necessary action.	P-1	
2. Inspect and test heater control valve(s); perform necessary action.	P-2	
3. Diagnose temperature control problems in the heater/ventilation system; determine PCM to interrupt system operation; determine necessary action.	P-2	
4. Determine procedure to remove, inspect, and reinstall heater core.	P-2	
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.	P-1	
2. Diagnose A/C compressor clutch control systems; determine necessary action.	P-2	
3. Diagnose malfunctions in the vacuum, mechanical, and electrical components and controls of the heating, ventilation, and A/C (HVAC) system; determine necessary action.	P-2	



4. Inspect and test A/C-heater control panel assembly; determine necessary action.	P-3	
5. Inspect and test A/C-heater control cables, motors, and linkages; perform necessary action.	P-3	
6. Inspect A/C-heater ducts, doors, hoses, cabin filters, and outlets; perform necessary action.	P-1	
7. Identify the source of A/C system odors.	P-2	
8. Check operation of automatic or semi-automatic heating, ventilation, and air-conditioning (HVAC) control systems; determine necessary action.	P-2	
E. Refrigerant recovery, Recycling, and Handling		
1. Perform correct use and maintenance of refrigerant handling equipment according to equipment manufacturer's standards.	P-1	
2. Identify and recover A/C system refrigerant.	P-1	
3. Recycle, label, and store refrigerant.	P-1	
4. Evacuate and charge A/C system; add refrigerant oil as required.	P-1	