



IMMR
TST
MTST
EM-2000-HB
EM-2000-OT
EM-2000-TXV
EM-2000-YF
HV-101

A. General								
1. Research vehicle service information, including refrigerant/oil type, vehicle service history, service precautions, and technical service bulletins.	P-1	P-1	P-1	X	X	X	X	X
2. Identify heating, ventilation, and air conditioning (HVAC) components and configuration.	P-1	P-1	P-1	X	X	X	X	X
3. Use appropriate electronic service tool(s) and procedures to diagnose problems; check and record diagnostic codes; interpret digital multimeter (DMM) readings; clear diagnostic codes when appropriate.	P-1	P-1	P-1					
4. Diagnose heating and air conditioning problems; determine needed action.		P-1	P-1	X	X	X	X	X
5. Identify refrigerant type; test for contamination; select and connect proper gauge set/test equipment; record temperature and pressure readings.		P-1	P-1	X	X	X	X	X
6. Demonstrate knowledge of A/C system performance test.		P-1	P-1	X	X	X	X	X
7. Demonstrate knowledge of A/C system leak test.		P-1	P-1	X	X	X	X	X
8. Inspect condition of refrigerant oil removed from A/C system; determine needed action.		P-1	P-1	X	X	X	X	X
9. Determine oil and oil capacity for system application and/or component replacement.		P-1	P-1	X	X	X	X	X
B. Refrigeration System Components								
1. Inspect, remove, and replace A/C compressor drive belts, pulleys, and tensioners; verify proper belt alignment.	P-1	P-1	P-1					
2. Check A/C system operation including system pressures; visually inspect A/C components for signs of leaks; check A/C monitoring system (if applicable).	P-1	P-1	P-1	X	X	X	X	X
3. Inspect A/C condenser for airflow restrictions; determine needed action.	P-1	P-1	P-1	X	X	X	X	X
4. Inspect evaporator housing water drain; perform needed action.	P-1	P-1	P-1	X	X	X	X	X
5. Inspect A/C compressor assembly; check compressor clutch air gap; determine needed action.		P-1	P-1					X
6. Inspect AC system hoses, lines, fittings, O-rings, seals, and service valves; determine needed action.		P-1	P-1	X	X	X	X	X
7. Inspect receiver/drier or accumulator/drier; determine needed action.		P-1	P-1	X	X	X	X	
8. Inspect expansion valve or orifice (expansion) tube; determine needed action.		P-1	P-1	X	X			X
9. Demonstrate knowledge of A/C system conditions that cause the protection devices (pressure, thermal, and/or control module) to interrupt system operation.		P-2	P-2	X	X	X	X	X
10. Demonstrate knowledge of procedure to remove and reinstall evaporator.		P-3	P-2					X
11. Demonstrate knowledge of procedure to inspect and/or replace condenser.		P-3	P-2					X
C. Heating, Ventilation, and Engine Cooling Systems								
1. Inspect engine cooling system and heater system hoses and pipes; determine needed action.	P-1	P-1	P-1					X
2. Inspect HVAC system heater ducts, doors, hoses, cabin filters, and outlets; determine needed action.	P-1	P-1	P-1					X
3. Identify the source of A/C system odors; determine needed action.	P-2	P-2	P-1	X	X	X	X	X
4. Identify temperature control problems in the HVAC system; determine needed action.		P-2	P-2	X	X	X	X	X
5. Demonstrate knowledge of the procedures to remove, inspect, reinstall, and/or replace engine coolant and heater system components.		P-3	P-2					X
D. Operating Systems and Related Controls								
1. Verify HVAC system blower motor operation; confirm proper air distribution; confirm proper temperature control; determine needed action.	P-1	P-1	P-1	X	X	X	X	X
2. Inspect and test HVAC system blower motors, resistors, switches, relays, wiring, and protection devices; determine needed action.		P-1	P-1	X	X	X	X	X



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4. Diagnose malfunctions in the vacuum, mechanical, and electrical components and controls of the HVAC system; determine needed action.		P-2	P-3					X
E. Refrigerant Recovery, Recycling, and Handling								
1. Demonstrate knowledge of correct use and maintenance of refrigerant handling equipment.		P-1	P-1	X	X	X	X	X
2. Demonstrate knowledge of how to identify A/C system refrigerant; test for sealants; recover, evacuate, and charge A/C system; add refrigerant oil as required.		P-1	P-1	X	X	X	X	X
3. Demonstrate knowledge of how to recover, recycle, label, and store refrigerant in accordance with EPA Section 609 guidelines.		P-1	P-1	X	X	X	X	X