



MAST - 1200 Hours
 AST - 840 Hours
 MLR - 540 Hours
 EM-140S WITH A/C
 EM-2000 (ALL)

A. General

2. Identify heating, ventilation, and air conditioning (HVAC) components and configurations.	P-1	P-1	P-1	X	X
3. Retrieve and record on-board diagnostics, DTCs, monitor status, and freeze frame data; clear codes and data when directed.	P-1	P-1	P-1	X	
4. Perform A/C system performance test; interpret results; determine needed action.	P-1	P-1	P-2	X	X
5. Identify abnormal operating noises in the A/C system; determine needed action.	P-2	P-2	P-3	X	X
6. Leak test A/C system; determine needed action.	P-1	P-1	P-1	X	X
7. Verify and interpret heating and air conditioning concerns; determine needed action.	P-1	P-1	P-1	X	X
8. Place a vehicle in service mode as needed before servicing and diagnosing the HVAC system.	P-1	P-1	P-1	X	X
9. Identify refrigerant type; test for sealant/contaminant; select and connect proper gauge set/test equipment; record temperature and pressure readings.	P-1	P-1		X	X
10. Inspect condition/quantity of refrigerant oil removed from A/C system; determine needed action.	P-1	P-1		X	X

B. Refrigeration System Components

2. Inspect for proper A/C condenser airflow; determine needed action.	P-1	P-1	P-2	X	X
3. Inspect evaporator housing condensation drain; determine needed action.	P-1	P-1	P-1	X	X
4. Inspect, test, and/or service A/C compressor clutch components and/or assembly; determine needed action.	P-2	P-2		X	
9. Diagnose A/C system conditions that cause the protection devices (pressure, thermal, and/or control module) to interrupt system operation; determine needed action.	P-1	P-2		X	X
10. Determine procedure to remove and reinstall evaporator; determine required oil type and quantity.	P-2	P-2		X	

C. Heating, Ventilation, and Engine Cooling Systems

1. Inspect engine cooling and heater systems hoses and pipes; determine needed action.	P-1	P-1	P-1	X	
2. Inspect and test heater control valve(s); determine needed action	P-2	P-2		X	
3. Diagnose temperature control problems in the HVAC system related to the engine cooling system, including electric heating; determine needed action.	P-2	P-3		X	

D. Operating Systems and Related Controls

1. Inspect HVAC system ducts, doors, hoses, cabin filters, and outlets; determine needed action.	P-1	P-1	P-1	X	
3. Inspect and test HVAC system blower motors, resistors, switches, relays, wiring, and protection devices; determine needed action.	P-1	P-1		X	
4. Diagnose A/C compressor control systems; determine needed action.	P-1	P-2		X	
5. Diagnose malfunctions in the vacuum, mechanical, and/or electrical components and controls of the HVAC system; determine needed action.	P-2	P-2		X	
7. Check operation of automatic HVAC control systems; determine needed action.	P-2	P-2		X	

E. Refrigerant Recovery, Recycling, and Handling

1. Demonstrate knowledge of the requirement to recover, recycle, and handle refrigerants using proper equipment and procedures.	P-1	P-1	P-1	X	X
2. Use and maintain refrigerant handling equipment according to equipment manufacturer's standards.	P-1	P-1		X	X
3. Identify A/C system refrigerant; test for sealants/contaminants; recover, evacuate, and charge A/C system; add refrigerant oil as required.	P-1	P-1		X	X
4. Recycle, label, and store refrigerant.	P-1	P-1		X	X