

## 2021 ASE Correlation Chart

### Heating, Ventilation, and Air Conditioning (HVAC) (A7)

**MLR-** Maintenance & Light Repair

**AST-** Auto Service Technology

**MAST-** Master Auto Service Technology

|                   | <b>Task</b>  | <b>MLR</b>                     | <b>AST</b> | <b>MAST</b> | <b>Text Page #</b> | <b>Task Page #</b> |
|-------------------|--|--------------------------------|------------|-------------|--------------------|--------------------|
| <b>A. General</b> |  |                                |            |             |                    |                    |
| <b>1.</b>         | Research vehicle service information, including refrigerant/oil/fluid type, vehicle service history, service precautions, technical service bulletins, and recalls including vehicles equipped with advanced driver assistance systems (ADAS). | P-1                            | P-1        | P-1         | 759                | 187;<br>193        |
| <b>2.</b>         | Identify heating, ventilation, and air conditioning (HVAC) components and configurations.  | P-1                            | P-1        | P-1         | 752-<br>755        | 187                |
| <b>3.</b>         | Retrieve and record DTCs, OBD monitor status, and freeze frame data; clear codes and data when directed.   | P-1                            | P-1        | P-1         | 776-<br>779        | 199;<br>275        |
| <b>4.</b>         | Identify steps of an A/C performance test; perform A/C system performance test; interpret results; determine needed action.  | P-2<br>Identify the steps only | P-1        | P-1         | 732-<br>733        | 194                |
| <b>5.</b>         | Identify abnormal operating noises in the A/C system; determine needed action  | P-3<br>Identify noises only    | P-2        | P-1         | 789                | 195                |

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| 6.  | Visually inspect A/C system for signs of leaks; leak test A/C system; determine needed action.                         | P-1<br>Inspect only             | P-1        | P-1         | 795-796            | 197                |
| 7.  | Identify and interpret heating and air conditioning problems; determine needed action.                                 | P-1<br>Identify problems only   | P-1        | P-1         | 789-795            | 209                |
| 8.  | Identify refrigerant type; select and connect proper gauge set/test equipment record temperature and pressure readings |                                 | P-1        | P-1         | 799; 802-803       | 196                |
| 9.  | Inspect condition of refrigerant oil removed from A/C system; determine needed action.                                 |                                 | P-2        | P-2         | 799-800            | 198                |
| 10.                                       | Determine recommended oil and oil capacity for system application.   |                                 | P-1        | P-1         | 759; 802           | 198                |
| <b>B. Refrigeration System Components</b> |  |                                 |            |             |                    |                    |
| 1.  | Inspect, remove, and/or replace A/C compressor drive belts, pulleys, and tensioners; determine needed action.          | P-1<br>Inspect and replace only | P-1        | P-1         | 149-150            | 210                |
| 2.  | Inspect for proper A/C condenser airflow; determine needed action.   | P-2                             | P-1        | P-1         | 804                | 211                |
| 3.  | Inspect evaporator housing water drain; perform needed action.   | P-1                             | P-1        | P-1         | 760                | 215                |
| 4.  | Inspect, test, and/or service A/C compressor clutch components and/or assembly; determine needed action.               |                                 | P-2        | P-2         | 768; 803           | 207; 210           |
| 5.  | Remove, inspect, reinstall and/or replace A/C compressor and mountings; determine recommended oil type and quantity.   |                                 | P-1        | P-1         | 803                | 210                |

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| 6.   | Remove and inspect A/C system mufflers, hoses, lines, fittings, O-rings, seals, and service valves; perform needed action.  |            | P-2        | P-2         | 800                | 214                |
| 7.   | Remove, inspect, and replace receiver/drier or accumulator/drier; determine recommended oil type and quantity.  |            | P-2        | P-2         | 804                | 212                |
| 8.   | Remove, inspect, and install expansion valve or orifice (expansion) tube.   |            | P-1        | P-1         | 804                | 213                |
| 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-2        | P-1         | 792                | 199                |
| 10.  | Determine procedure to remove and reinstall evaporator; determine required oil type and quantity.   |            | P-2        | P-2         | 795;<br>804        | 216                |
| 11.  | Remove, inspect, reinstall and/or replace condenser; determine required oil type and quantity.  |            | P-3        | P-2         | 804                | 217                |
| <b>C. Heating, Ventilation, and Engine Cooling Systems</b> |   |            |            |             |                    |                    |
| 1.   | Inspect engine cooling and heater systems hoses and pipes; determine needed action.   | P-1        | P-1        | P-1         | 206;<br>788        | 202;<br>218        |
| 2.   | Inspect and test heater control valve(s); perform needed action   |            | P-2        | P-2         | 206                | 201                |
| 3.   | Diagnose temperature control problems in the HVAC system related to the engine cooling system, including electric heating; determine needed action.                 |            | P-3        | P-2         | 676                | 201;<br>209        |

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| 4.  | Determine procedure to remove, inspect, reinstall, and/or replace heater core; properly refill system.                                  |            | P-2        | P-2         | 804                 | 205;<br>216        |
| <b>D. Operating Systems and Related Controls</b>        |   |            |            |             |                     |                    |
| 1.  | Inspect HVAC system heater ducts, doors, hoses, cabin filters, and outlets; determine needed action.                                    | P-1        | P-1        | P-1         | 773-776;<br>784-786 | 223                |
| 2.  | Identify the source of HVAC system odors.   | P-2        | P-2        | P-2         | 795                 | 209                |
| 3.  | Inspect and test HVAC system blower motors, resistors, switches, relays, wiring, and protection devices; determine needed action.       |            | P-1        | P-1         | 779-780             | 189;<br>206        |
| 4.  | Diagnose A/C compressor control systems; determine needed action.   |            | P-2        | P-1         | 756                 | 207                |
| 5.  | Diagnose malfunctions in the vacuum, mechanical, and/or electrical components and controls of the HVAC system; determine needed action. |            | P-2        | P-2         | 772-776             | 191                |
| 6.  | Inspect, test, remove and/or replace HVAC system control panel; determine needed action.  |            | P-2        | P-2         | 772                 | 208                |
| 8.  | Check operation of automatic HVAC control systems; determine needed action.   |            | P-2        | P-2         | 770-780             | 190;<br>192        |
| <b>E. Refrigerant Recovery, Recycling, and Handling</b> |   |            |            |             |                     |                    |
| 1.  | Demonstrate awareness of the need to recover, recycle, and handle refrigerants using proper equipment and procedures.                   | P-1        | P-1        | P-1         | 756-757             | 219                |
| 2.  | Use and maintain refrigerant handling equipment according to equipment manufacturer's standards.  |            | P-1        | P-1         | 756-758             | 219;<br>222        |

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|-----------|---|------------|------------|-------------|--------------------|--------------------|
| <b>3.</b> | Identify A/C system refrigerant; test for sealants; recover, evacuate, and charge A/C system; add refrigerant oil as required |            | P-1        | P-1         | 792                | 220                |
| <b>4.</b> | Recycle, label, and store refrigerant   |            | P-1        | P-1         | 756-758            | 221                |