

## 2017 ASE Correlation Chart

### Engine Performance (A8)

**MLR-** Maintenance & Light Repair

**AST-** Auto Service Technology (Includes MLR)

**MAST-** Master Auto Service Technology (Includes MLR and AST)

	Task	Priority	MLR	AST	MAST	Text Page #	Task Page #
<b>A. General: Engine Diagnosis</b>							
1.	Identify and interpret engine performance concerns; determine needed action.	P-1		✓	✓	1027-1042	258; 279
2.	Research vehicle service information including, vehicle service history, service precautions, and technical service bulletins.	P-1	✓	✓	✓	130-132	226; 229; 230; 250; 272
3.	Diagnose abnormal engine noises or vibration concerns; determine needed action.	P-3		✓	✓	259-260	66-69
4.	Diagnose the cause of excessive oil consumption, coolant consumption, unusual exhaust color, odor, and sound; determine needed action.	P-2		✓	✓	256-258	66; 67
5.	Perform engine absolute manifold pressure tests (vacuum/boost); determine needed action.	P-1		✓	✓	266-267	270
6.	Perform cylinder power balance test; determine needed action.	P-1		✓	✓	261; 265	71
7.	Perform cylinder cranking and running compression tests; determine needed action.	P-1		✓	✓	261-264	72
8.	Perform cylinder leakage test; determine needed action.	P-1		✓	✓	264-265	73

9.	Diagnose engine mechanical, electrical, electronic, fuel, and ignition concerns; determine needed action.	P-2		✓	✓	256-271; 849-865; 951-959; 963-977	233; 239-245
10.	Verify engine operating temperature; determine needed action.	P-1		✓	✓	208; 875-878	52; 57
11.	Verify correct camshaft timing including engines equipped with variable valve timing systems (VVT).	P-1	✓	✓	✓	275-276; 356-361	76; 94
<b>B. Computerized Controls Diagnosis and Repair</b>							
1.	Retrieve and record diagnostic trouble codes (DTC), OBD monitor status, and freeze frame data; clear codes when applicable.	P-1		✓	✓	1020-1022; 1035-1045	272-275
2.	Access and use service information to perform step-by-step (troubleshooting) diagnosis.	P-1		✓	✓	1027-1042	276
3.	Perform active tests of actuators using a scan tool; determine needed action.	P-1		✓	✓	958; 989-990; 1001	277
4.	Describe the use of OBD monitors for repair verification	P-1	✓	✓	✓	1020-1022	274; 275
5.	Diagnose the causes of emissions or drivability concerns with stored or active diagnostic trouble codes (DTC); obtain, graph, and interpret scan tool data.	P-1		✓	✓	1025-1026; 1031-1038	252; 275

6.	Diagnose emissions or drivability concerns without stored diagnostic trouble codes; determine needed action.	P-1			✓	1023-1026; 1031	253; 278; 279
7.	Inspect and test computerized engine control system sensors, powertrain/engine control module (PCM/ECM), actuators, and circuits using a graphing multimeter (GMM)/digital storage oscilloscope (DSO); perform needed action.	P-2			✓	264; 860-865; 872; 879; 886; 898; 900; 911; 916; 968; 1012	132
8.	Diagnose drivability and emissions problems resulting from malfunctions of interrelated systems (cruise control, security alarms, suspension controls, traction controls, HVAC, automatic transmissions, non-OEM installed accessories, or similar systems); determine needed action.	P-2			✓	1031-1042	279
<b>C. Ignition System Diagnosis and Repair</b>							
1.	Diagnose (troubleshoot) ignition system related problems such as no-starting, hard starting, engine misfire, poor drivability, spark knock, power loss, poor mileage, and emissions concerns; determine needed action.	P-2		✓	✓	849-865	231; 232
2.	Inspect and test crankshaft and camshaft position sensor(s); determine needed action.	P-1		✓	✓	853-854	236-238
3.	Inspect, test, and/or replace ignition control module, powertrain/engine control module; reprogram/initialize as needed.	P-3		✓	✓	852-853	231

4.	Remove and replace spark plugs; inspect secondary ignition components for wear and damage.	P-1	✓	✓	✓	847; 855- 858	234; 235
<b>D. Fuel, Air Induction, and Exhaust Systems Diagnosis and Repair</b>							
1.	Diagnose (troubleshoot) hot or cold no-starting, hard starting, poor drivability, incorrect idle speed, poor idle, flooding, hesitation, surging, engine misfire, power loss, stalling, poor mileage, dieseling, and emissions problems; determine needed action.	P-2			✓	810; 816- 817; 880; 885; 893; 900; 915; 932; 950- 951; 956- 957; 963- 972	246; 278
2.	Check fuel for contaminants; determine needed action.	P-2		✓	✓	815- 817	224; 225
3.	Inspect and test fuel pumps and pump control systems for pressure, regulation, and volume; perform needed action.	P-1		✓	✓	928- 932	247
4.	Replace fuel filter(s) where applicable.	P-2	✓	✓	✓	927	248
5.	Inspect, service, or replace air filters, filter housings, and intake duct work.	P-1	✓	✓	✓	142- 143	249
6.	Inspect throttle body, air induction system, intake manifold and gaskets for vacuum leaks and/or unmetered air.	P-2		✓	✓	958; 969- 971	249
7.	Inspect test and /or replace fuel injectors.	P-2		✓	✓	965- 969	254- 257
8.	Verify idle control operation.	P-1		✓	✓	969- 971	252

9.	Inspect integrity of the exhaust manifold, exhaust pipes, muffler(s), catalytic converter(s), resonator(s), tail pipe(s), and heat shields; perform needed action.	P-1	✓	✓	✓	241-244	63
10.	Inspect condition of exhaust system hangers, brackets, clamps, and heat shields; determine needed action.	P-1	✓	✓	✓	242-244; 260	63
11.	Perform exhaust system back-pressure test; determine needed action.	P-2			✓	155; 1013-1014	270
12.	Check and refill diesel exhaust fluid (DEF).	P-2	✓	✓	✓	155; 182-183	41
13.	Test the operation of turbocharger/supercharger systems; determine needed action.	P-2			✓	251-253	65
<b>E. Emissions Control Systems Diagnosis and Repair</b>							
1.	Diagnose oil leaks, emissions, and drivability concerns caused by the positive crankcase ventilation (PCV) system; determine needed action.	P-3		✓	✓	257-258; 1005	265; 266
2.	Inspect, test, service and /or replace positive crankcase ventilation (PCV) filter/breather, valve, tubes, orifices, and hoses; perform needed action.	P-2	✓	✓	✓	1004-1006	265
3.	Diagnose emissions and drivability concerns caused by the exhaust gas recirculation (EGR) system; inspect, and test, service and/or replace electrical/electronic sensors, controls, and wiring of exhaust gas recirculation (EGR) systems tubing, exhaust passages, vacuum/pressure controls, filters and hoses of exhaust gas recirculation (EGR) systems; determine needed action.	P-2		✓	✓	999-1001	262; 263

AT6-Halderman

4.	Diagnose emissions and drivability concerns caused by the components and circuits of air injection systems; inspect, test, repair, and/or replace electrical/electronically-operated components and circuits of secondary air injection systems; determine needed action.	P-2		✓	✓	1006-1008	267-269
5.	Diagnose emissions and drivability concerns caused by the evaporative emissions control (EVAP) system; determine needed action.	P-2			✓	990-994	259; 260
6.	Diagnose emission and drivability concerns caused by catalytic converter system; determine needed action.	P-2			✓	1013-1015	271
7.	Interpret diagnostic trouble codes (DTCs) and scan tool data related to the emissions control systems; determine needed action	P-3		✓	✓	994; 1001; 1006; 1008; 1015	261