

## 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		✓	✓	2-8; 377-379	1
2.	Research vehicle service information including, vehicle service history, service precautions, and technical service bulletins.	P-1	✓	✓	✓	3-7; 379-381	3,4,13, 14,22, 24,33, 49,50, 83,93, 96,104
3.	Diagnose abnormal engine noises or vibration concerns; determine needed action.	P-3		✓	✓	103-104	25, 27
4.	Diagnose the cause of excessive oil consumption, coolant consumption, unusual exhaust color, odor, and sound; determine needed action.	P-2		✓	✓	3-6; 90-91; 118-122; 132; 336-337	26, 28
5.	Perform engine absolute manifold pressure tests (vacuum/boost); determine needed action.	P-1		✓	✓	128-131	29
6.	Perform cylinder power balance test; determine needed action.	P-1		✓	✓	123-125	30

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7.	Perform cylinder cranking and running compression tests; determine needed action.	P-1		✓	✓	125-128	31
8.	Perform cylinder leakage test; determine needed action.	P-1		✓	✓	128-129	32
9.	Diagnose engine mechanical, electrical, electronic, fuel, and ignition concerns; determine needed action.	P-2		✓	✓	222-228	47
10.	Verify engine operating temperature; determine needed action.	P-1		✓	✓	90	65
11.	Verify correct camshaft timing including engines equipped with variable valve timing systems (VVT).	P-1	✓	✓	✓	92-93; 111-114	16, 103
<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		✓	✓	12-16; 157-164	97
2.	Access and use service information to perform step-by-step (troubleshooting) diagnosis.	P-1		✓	✓	9-11; 19	2,34, 45
3.	Perform active tests of actuators using a scan tool; determine needed action.	P-1		✓	✓	16-17	23
4.	Describe the use of OBD monitors for repair verification	P-1	✓	✓	✓	19-20; 160-164; 168-173	46
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		✓	✓	12-16; 156-164	2

6.	Diagnose emissions or drivability concerns without stored diagnostic trouble codes; determine needed action.	P-1			✓	17-19; 168-173; 288-296	86, 98,117
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			✓	50-57; 68-73; 232-236; 242-243; 251-252; 255-257; 274-279; 417-419	12, 66-82, 84, 85,116
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			✓	157-164; 176-177; 369-371	47,83, 103
<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		✓	✓	176-184; 213-221	48,51, 53,54, 55
2.	Inspect and test crankshaft and camshaft position sensor(s); determine needed action.	P-1		✓	✓	215-216	58, 59

3.	Inspect, test, and/or replace ignition control module, powertrain/engine control module; reprogram/initialize as needed.	P-3		✓	✓	214-215	60
4.	Remove and replace spark plugs; inspect secondary ignition components for wear and damage.	P-1	✓	✓	✓	219-221	56,57
<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			✓	176-184; 189-199; 263-266; 288-296	47, 99
2.	Check fuel for contaminants; determine needed action.	P-2		✓	✓	29-30	5
3.	Inspect and test fuel pumps and pump control systems for pressure, regulation, and volume; perform needed action.	P-1		✓	✓	308-314	87-91
4.	Replace fuel filter(s) where applicable.	P-2	✓	✓	✓	308	92
5.	Inspect, service, or replace air filters, filter housings, and intake duct work.	P-1	✓	✓	✓	256-257; 341-342; 349-352	15,95
6.	Inspect throttle body, air induction system, intake manifold and gaskets for vacuum leaks and/or unmetered air.	P-2		✓	✓	91-92; 263-266	17,95
7.	Inspect test and /or replace fuel injectors.	P-2		✓	✓	337; 345-349	100-102
8.	Verify idle control operation.	P-1		✓	✓	263-266	94

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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	✓	✓	✓	377	-
10.	Inspect condition of exhaust system hangers, brackets, clamps, and heat shields; determine needed action.	P-1	✓	✓	✓	-	-
11.	Perform exhaust system back-pressure test; determine needed action.	P-2			✓	130-132; 400-401	107
12.	Check and refill diesel exhaust fluid (DEF).	P-2	✓	✓	✓	-	-
13.	Test the operation of turbocharger/supercharger systems; determine needed action.	P-2			✓	85-86	-

<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		✓	✓	391-395	105, 106
2.	Inspect, test, service and /or replace positive crankcase ventilation (PCV) filter/breather, valve, tubes, orifices, and hoses; perform needed action.	P-2	✓	✓	✓	391-395	108
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,	P-2		✓	✓	388-391	106, 109-111

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	filters and hoses of exhaust gas recirculation (EGR) systems; determine needed action.						
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		✓	✓	395-397	113
5.	Diagnose emissions and drivability concerns caused by the evaporative emissions control (EVAP) system; determine needed action.	P-2			✓	407-410	114, 115
6.	Diagnose emission and drivability concerns caused by catalytic converter system; determine needed action.	P-2			✓	397-403	112
7.	Interpret diagnostic trouble codes (DTCs) and scan tool data related to the emissions control systems; determine needed action	P-3		✓	✓	391; 395; 397; 403; 410	106