

2022 ASE Correlation Chart

Engine Performance (A8)

MLR- Maintenance & Light Repair

AST- Auto Service Technology

MAST- Master Auto Service Technology

	Task	MLR	AST	MAST	Text Page #	Task Page #
A. General						
1.	Research vehicle service information such as 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	2-4	4-8
2.	Retrieve and record DTCs, OBD monitor status, and freeze frame data; clear codes and data when directed.	P-1	P-1	P-1	527-531	89; 91; 92; 181; 183; 184
3.	Demonstrate understanding of proper engine cooling system operation; verify proper engine cooling system operation; determine needed action.	P-1 Under- standing only	P-1	P-1	130-147	24; 25; 26; 27; 28; 56
4.	Demonstrate understanding of camshaft timing; verify correct camshaft timing including engines equipped with variable valve timing (VVT) systems; determine needed action.	P-1 Under- standing only	P-1	P-1	176-184	36; 37; 62
5.	Identify and interpret engine performance concerns; determine needed action.		P-1	P-1	523-529	57; 177; 179

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6.	Diagnose abnormal engine noises or vibration concerns; determine needed action.		P-3	P-2	204-205	45
7.	Diagnose the cause of excessive oil consumption, coolant consumption, unusual exhaust color, odor, and sound; determine needed action.		P-2	P-2	201	46
8.	Perform engine absolute manifold pressure tests (vacuum/boost); determine needed action.		P-2	P-1	212-214	47
9.	Perform cylinder power balance test; determine needed action.		P-1	P-1	211	48; 49
10.	Perform cylinder cranking and running compression tests; determine needed action.		P-1	P-1	208-210	50; 51; 52
11.	Perform cylinder leakage test; determine needed action.		P-1	P-1	210-211	53
12.	Diagnose engine mechanical, electrical, electronic, fuel, and ignition concerns; determine needed action.		P-2	P-1	523-531	57
B. Computerized Controls						
1.	Identify computerized control system components and configurations.	P-1	P-1	P-1	307-313	86; 87
2.	Access and use service information to perform step-by-step (troubleshooting) diagnosis.		P-1	P-1	523-529	177
3.	Perform active tests of actuators using a scan tool; determine needed action.		P-1	P-1	529-530	188
4.	Describe the use of OBD monitors for repair verification		P-1	P-1	322	92; 184

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5.	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), and/or scan tool; determine needed action.		P-2	P-1	285; 299; 375	115; 121; 122; 126; 132; 142; 166; 167
6.	Describe the process for reprogramming or recalibrating the powertrain/engine control module (PCM/ECM).		P-1	P-1	-	-
7.	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	326- 329	89; 181
8.	Diagnose emissions or drivability concerns without stored diagnostic trouble codes; determine needed action.			P-1	330	58; 187
9.	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-1	523- 529	57; 58;
C. Ignition System						
1.	Identify ignition system components and configurations.	P-1	P-1	P-1		

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2.	Remove and replace spark plugs; inspect secondary ignition components for wear and damage; determine needed action.	P-2	P-1	P-1	289-284	81
3.	Diagnose ignition system related problems such as no-starting, hard starting, engine misfire, poor driveability, spark knock, power loss, poor mileage, and emissions concerns; determine needed action.		P-2	P-1	455-457	137; 152
4.	Inspect and test crankshaft and camshaft position sensor(s); determine needed action.		P-2	P-1	284-285	72-78
5.	Inspect, test, and/or replace ignition control module, powertrain/engine control module; reprogram/initialize as needed.		P-2	P-2	286	79; 85
D. Fuel, Air Induction, and Exhaust Systems						
1.	Identify fuel, air induction, and exhaust system components and configurations.	P-1	P-1	P-1		
2.	Replace fuel filter(s) where applicable.	P-2	P-2	P-2	411	131
3.	Inspect, service, or replace air filters, filter housings, and intake duct work.	P-1	P-1	P-1	456	33; 134
4.	Inspect integrity of the exhaust manifold, exhaust pipes, muffler(s), catalytic converter(s), resonator(s), tail pipe(s), and heat shields; determine needed action.	P-1	P-1	P-1	170-173	34; 35

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5.	Inspect condition of exhaust system hangers, brackets, clamps, and heat shields; determine needed action.	P-1	P-1	P-1	171-173	35
6.	Check and refill diesel exhaust fluid (DEF).	P-3	P-3	P-3	84-85	14
7.	Check fuel for quality, composition, and contamination; determine needed action.		P-2	P-1	102-105	17; 18; 19;
8.	Inspect and test fuel pumps and pump control systems for pressure, regulation, and volume; determine needed action.		P-1	P-1	412-417	126; 127; 128; 129; 130
9.	Inspect throttle body, air induction system, intake manifold and gaskets for vacuum leaks and/or unmetereed air.		P-1	P-1	367; 456; 525	133; 152
10.	Inspect, test, and/or replace fuel injectors on low- and high-pressure systems.		P-2	P-1	458-465	143-151
11.	Verify proper idle speed; determine needed action.		P-1	P-1	466	140
12.	Perform exhaust system back-pressure test; determine needed action.		P-2	P-2	214; 508	170
13.	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	455-457	137-152
14.	Test the operation of turbocharger/supercharger systems; determine needed action.			P-2	189-198	38; 39

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E. Emissions Control Systems						
1.	Identify emission control system components and configurations.	P-1	P-1	P-1	491-519	-
2.	Inspect, test, service and /or replace positive crankcase ventilation (PCV) filter/breather, valve, tubes, orifices, and hoses; perform needed action.	P-2	P-2	P-2	500	161-163
3.	Diagnose oil leaks, emissions, and drivability concerns caused by the positive crankcase ventilation (PCV) system; determine needed action.		P-2	P-2	499	161-163
4.	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	P-1	495	156-160
5.	Inspect and test electrical/electronically operated components and circuits of secondary air injection systems; determine needed action.		P-3	P-3	503	164; 165; 166
6.	Diagnose emission and drivability concerns caused by catalytic converter system; determine needed action.		P-1	P-1	504; 508	167-169
7.	Diagnose emissions and drivability concerns caused by the evaporative emissions control (EVAP) system; determine needed action.		P-1	P-1	516	171-176

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8.	Interpret diagnostic trouble codes (DTCs) and scan tool data related to the emissions control systems; determine needed action		P-1	P-1	496; 501; 504; 511; 519	177; 184; 187 188;