

2021 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	130-132	226; 229; 230; 250; 272
2.	Retrieve and record DTCs, OBD monitor status, and freeze frame data; clear codes and data when directed.	P-1	P-1	P-1	1020-1022; 1035-1045	272-275
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	208; 875-878	52; 57
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	275-276; 356-361	76; 94
5.	Identify and interpret engine performance concerns; determine needed action.		P-1	P-1	1027-1042	258; 279

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6.	Diagnose abnormal engine noises or vibration concerns; determine needed action.		P-3	P-2	259-260	66-69
7.	Diagnose the cause of excessive oil consumption, coolant consumption, unusual exhaust color, odor, and sound; determine needed action.		P-2	P-2	256-258	66; 67
8.	Perform engine absolute manifold pressure tests (vacuum/boost); determine needed action.		P-2	P-1	266-267	270
9.	Perform cylinder power balance test; determine needed action.		P-1	P-1	261; 265	71
10.	Perform cylinder cranking and running compression tests; determine needed action.		P-1	P-1	261-264	72
11.	Perform cylinder leakage test; determine needed action.		P-1	P-1	264-265	73
12.	Diagnose engine mechanical, electrical, electronic, fuel, and ignition concerns; determine needed action.		P-2	P-1	256-271; 849-865; 951-959; 963-977	233; 239-245
B. Computerized Controls						
1.	Identify computerized control system components and configurations.	P-1	P-1	P-1	867-916	239; 240; 241; 242; 243; 244
2.	Access and use service information to perform step-by-step (troubleshooting) diagnosis.		P-1	P-1	1027-1042	276

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3.	Perform active tests of actuators using a scan tool; determine needed action.		P-1	P-1	958; 989- 990; 1001	277
4.	Describe the use of OBD monitors for repair verification		P-1	P-1	1020- 1022	274; 275
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	264; 860- 865; 872; 879; 886; 898; 900; 911; 916; 968; 1012	132
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	1025- 1026; 1031- 1038	252; 275
8.	Diagnose emissions or drivability concerns without stored diagnostic trouble codes; determine needed action.			P-1	1023- 1026; 1031	253; 278; 279

	Task	MLR	AST	MAST	Text Page #	Task Page #
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	1031-1042	279
C. Ignition System						
1.	Identify ignition system components and configurations.	P-1	P-1	P-1	834-847	229
2.	Remove and replace spark plugs; inspect secondary ignition components for wear and damage; determine needed action.	P-2	P-1	P-1	847; 855-858	234; 235
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	849-865	231; 232
4.	Inspect and test crankshaft and camshaft position sensor(s); determine needed action.		P-2	P-1	853-854	236-238
5.	Inspect, test, and/or replace ignition control module, powertrain/engine control module; reprogram/initialize as needed.		P-2	P-2	852-853	231

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D. Fuel, Air Induction, and Exhaust Systems						
1.	Identify fuel, air induction, and exhaust system components and configurations.	P-1	P-1	P-1	236-244; 834-959	63; 229; 249; 250; 251
2.	Replace fuel filter(s) where applicable.	P-2	P-2	P-2	927	248
3.	Inspect, service, or replace air filters, filter housings, and intake duct work.	P-1	P-1	P-1	142-143	249
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	241-244	63
5.	Inspect condition of exhaust system hangers, brackets, clamps, and heat shields; determine needed action.	P-1	P-1	P-1	242-244; 260	63
6.	Check and refill diesel exhaust fluid (DEF).	P-3	P-3	P-3	155; 182-183	41
7.	Check fuel for quality, composition, and contamination; determine needed action.		P-2	P-1	815-817	224; 225
8.	Inspect and test fuel pumps and pump control systems for pressure, regulation, and volume; determine needed action.		P-1	P-1	928-932	247
9.	Inspect throttle body, air induction system, intake manifold and gaskets for vacuum leaks and/or unmeasured air.		P-1	P-1	958; 969-971	249
10.	Inspect, test, and/or replace fuel injectors on low- and high-pressure systems.		P-2	P-1	965-969	254-257

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11.	Verify proper idle speed; determine needed action.		P-1	P-1	969-971	252
12.	Perform exhaust system back-pressure test; determine needed action.		P-2	P-2	155; 1013-1014	270
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	810; 816-817; 880; 885; 893; 900; 915; 932; 950-951; 956-957; 963-972	246; 278
14.	Test the operation of turbocharger/supercharger systems; determine needed action.			P-2	251-253	65
E. Emissions Control Systems						
1.	Identify emission control system components and configurations.	P-1	P-1	P-1	987-1015	259; 262; 265; 271
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	1004-1006	265
3.	Diagnose oil leaks, emissions, and drivability concerns caused by the positive crankcase ventilation (PCV) system; determine needed action.		P-2	P-2	257-258; 1005	265; 266

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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	999-1001	262; 263
5.	Inspect and test electrical/electronically operated components and circuits of secondary air injection systems; determine needed action.		P-3	P-3	1006-1008	267-269
6.	Diagnose emission and drivability concerns caused by catalytic converter system; determine needed action.		P-1	P-1	1013-1015	271
7.	Diagnose emissions and drivability concerns caused by the evaporative emissions control (EVAP) system; determine needed action.		P-1	P-1	990-994	259; 260
8.	Interpret diagnostic trouble codes (DTCs) and scan tool data related to the emissions control systems; determine needed action		P-1	P-1	994; 1001; 1006; 1008; 1015	261