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: Engine Diagnosis					
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	3-7; 379-381	3,4,13, 14,22, 24,33, 49,50, 83,93, 96,104
2.	Retrieve and record DTCs, OBD monitor status, and freeze frame data; clear codes and data when directed.	P-1	P-1	P-1	12-16; 157-164	97
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	90	65
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	92-93; 111-114	16, 22, 23
5.	Identify and interpret engine performance concerns; determine needed action.		P-1	P-1	2-8; 377-379	1, 24,

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6.	Diagnose abnormal engine noises or vibration concerns; determine needed action.		P-3	P-2	103-104	25, 27
7.	Diagnose the cause of excessive oil consumption, coolant consumption, unusual exhaust color, odor, and sound; determine needed action.		P-2	P-2	3-6; 90-91; 118-122; 132; 336-337	26, 28
8.	Perform engine absolute manifold pressure tests (vacuum/boost); determine needed action.		P-2	P-1	128-131	29
9.	Perform cylinder power balance test; determine needed action.		P-1	P-1	123-125	30
10.	Perform cylinder cranking and running compression tests; determine needed action.		P-1	P-1	125-128	31
11.	Perform cylinder leakage test; determine needed action.		P-1	P-1	128-129	32
12.	Diagnose engine mechanical, electrical, electronic, fuel, and ignition concerns; determine needed action.		P-2	P-1	222-228	47
	B. Computerized Controls Diagnosis and Repair					
1.	Identify computerized control system components and configurations.	P-1	P-1	P-1	138-140; 231-232; 240; 246; 252; 260	33, 61, 66, 73, 83
2.	Access and use service information to perform step-by-step (troubleshooting) diagnosis.		P-1	P-1	9-11; 19	2, 34, 35

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3.	Perform active tests of actuators using a scan tool; determine needed action.		P-1	P-1	16-17	23
4.	Describe the use of OBD monitors for repair verification		P-1	P-1	19-20; 160-164; 168-173	2
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	50-57; 68-73; 232-236; 242-243; 251-252; 255-257; 274-279; 417-419	12, 66-82, 84, 85,116
6.	Describe the process for reprogramming or recalibrating the powertrain/engine control module (PCM/ECM).		P-1	P-1	414-420	116
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	12-16; 156-164	2

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8.	Diagnose emissions or drivability concerns without stored diagnostic trouble codes; determine needed action.			P-1	17-19; 168-173; 288-296	86, 98, 117
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	157-164; 176-177; 369-371	47, 83, 103
	C. Ignition System Diagnosis and Repair					
1.	Identify ignition system components and configurations.	P-1	P-1	P-1	202-203	49
2.	Remove and replace spark plugs; inspect secondary ignition components for wear and damage; determine needed action.	P-2	P-1	P-1	219-221	56, 57
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	176-184; 213-221	48, 51, 53, 54, 55
4.	Inspect and test crankshaft and camshaft position sensor(s); determine needed action.		P-2	P-1	215-216	58, 59
5.	Inspect, test, and/or replace ignition control module, powertrain/engine control module; reprogram/initialize as needed.		P-2	P-2	214-215	60

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D. Fuel, Air Induction, and Exhaust Systems Diagnosis and Repair						
1.	Identify fuel, air induction, and exhaust system components and configurations.	P-1	P-1	P-1	80-81	13, 1796,
2.	Replace fuel filter(s) where applicable.	P-2	P-2	P-2	308	92
3.	Inspect, service, or replace air filters, filter housings, and intake duct work.	P-1	P-1	P-1	256-257; 341-342; 349-352	15, 95
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	377	-
5.	Inspect condition of exhaust system hangers, brackets, clamps, and heat shields; determine needed action.	P-1	P-1	P-1	-	-
6.	Check and refill diesel exhaust fluid (DEF).	P-3	P-3	P-3	-	-
7.	Check fuel for quality, composition, and contamination; determine needed action.		P-2	P-1	29-30	5
8.	Inspect and test fuel pumps and pump control systems for pressure, regulation, and volume; determine needed action.		P-1	P-1	308-314	87-91
9.	Inspect throttle body, air induction system, intake manifold and gaskets for vacuum leaks and/or unmetered air.		P-1	P-1	91-92; 263-266	17, 95
10.	Inspect, test, and/or replace fuel injectors on low- and high-pressure systems.		P-2	P-1	337; 345-349	96, 100-102

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11.	Verify proper idle speed; determine needed action.		P-1	P-1	263-266	94
12.	Perform exhaust system back-pressure test; determine needed action.		P-2	P-2	130-132; 400-401	107
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	176-184; 189-199; 263-266; 288-296	47, 99
14.	Test the operation of turbocharger/supercharger systems; determine needed action.			P-2	85-86	-
	E. Emissions Control Systems Diagnosis and Repair					
1.	Identify emission control system components and configurations.	P-1	P-1	P-1	385-410	106
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	391-395	108
3.	Diagnose oil leaks, emissions, and drivability concerns caused by the positive crankcase ventilation (PCV) system; determine needed action.		P-2	P-2	391-395	106, 108

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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	388-391	106, 109-111
5.	Inspect and test electrical/electronically operated components and circuits of secondary air injection systems; determine needed action.		P-3	P-3	395-397	113
6.	Diagnose emission and drivability concerns caused by catalytic converter system; determine needed action.		P-1	P-1	397-403	112
7.	Diagnose emissions and drivability concerns caused by the evaporative emissions control (EVAP) system; determine needed action.		P-1	P-1	407-410	114, 115
8.	Interpret diagnostic trouble codes (DTCs) and scan tool data related to the emissions control systems; determine needed action		P-1	P-1	391; 395; 397; 403; 410	106