

2017 NATEF Correlation Chart

MLR- Maintenance & Light Repair

AST- Auto Service Technology (Includes MLR)

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

Engine Performance (A8)

	Task	Priority	MLR	AST	MAST	Text Page #	Task Page #
A. General: Engine Diagnosis							
1.	Identify and interpret engine performance concerns; determine needed action.	P-1		✓	✓	523	57
2.	Research vehicle service information including, vehicle service history, service precautions, and technical service bulletins.	P-1	✓	✓	✓	2-4	4-8
3.	Diagnose abnormal engine noises or vibration concerns; determine needed action.	P-3		✓	✓	204-205	45
4.	Diagnose the cause of excessive oil consumption, coolant consumption, unusual exhaust color, odor, and sound; determine needed action.	P-2		✓	✓	201	46
5.	Perform engine absolute manifold pressure tests (vacuum/boost); determine needed action.	P-1		✓	✓	212-214	47
6.	Perform cylinder power balance test; determine needed action.	P-1		✓	✓	211	48; 49
7.	Perform cylinder cranking and running compression tests; determine needed action.	P-1		✓	✓	208-210	50; 51; 52

8.	Perform cylinder leakage test; determine needed action.	P-1		✓	✓	210–211	53
9.	Diagnose engine mechanical, electrical, electronic, fuel, and ignition concerns; determine needed action.	P-2		✓	✓	523–531	57
10.	Verify engine operating temperature; determine needed action.	P-1		✓	✓	134	56
11.	Verify correct camshaft timing including engines equipped with variable valve timing systems (VVT).	P-1	✓	✓	✓	225	37; 62
B. Computerized Controls Diagnosis and Repair							
1.	Retrieve and record diagnostic trouble codes (DTC), OBD monitor status, and freeze frame data; clear codes when applicable.	P-1		✓	✓	527–531	89; 92; 184
2.	Access and use service information to perform step-by-step (troubleshooting) diagnosis.	P-1		✓	✓	523	177
3.	Perform active tests of actuators using a scan tool; determine needed action.	P-1		✓	✓	529–530	188
4.	Describe the use of OBD monitors for repair verification	P-1	✓	✓	✓	322	92; 184
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		✓	✓	326–329	89; 181
6.	Diagnose emissions or drivability concerns without stored diagnostic trouble codes; determine needed action.	P-1			✓	330	187

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			✓	285; 299; 375	115; 121; 126; 132; 142; 166; 167
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			✓	523– 529	57; 58; 62
C. Ignition System Diagnosis and Repair							
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		✓	✓	282	70- 71; 80
2.	Inspect and test crankshaft and camshaft position sensor(s); determine needed action.	P-1		✓	✓	284– 285	72-78
3.	Inspect, test, and/or replace ignition control module, powertrain/engine control module; reprogram/initialize as needed.	P-3		✓	✓	286	79; 85
4.	Remove and replace spark plugs; inspect secondary ignition components for wear and damage.	P-1	✓	✓	✓	289– 294	81

D. Fuel, Air Induction, and Exhaust Systems Diagnosis and Repair							
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			✓	455– 457	137– 152
2.	Check fuel for contaminants; determine needed action.	P-2		✓	✓	102; 105	17; 18; 19
3.	Inspect and test fuel pumps and pump control systems for pressure, regulation, and volume; perform needed action.	P-1		✓	✓	412– 417	126– 130
4.	Replace fuel filter(s) where applicable.	P-2	✓	✓	✓	411	131
5.	Inspect, service, or replace air filters, filter housings, and intake duct work.	P-1	✓	✓	✓	456	33; 134
6.	Inspect throttle body, air induction system, intake manifold and gaskets for vacuum leaks and/or unmetered air.	P-2		✓	✓	367; 456; 525	133; 152
7.	Inspect test and /or replace fuel injectors.	P-2		✓	✓	458– 465	143– 151
8.	Verify idle control operation.	P-1		✓	✓	466	140
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	✓	✓	✓	170– 173	34; 35
10.	Inspect condition of exhaust system hangers, brackets, clamps, and heat shields; determine needed action.	P-1	✓	✓	✓	171– 173	35
11.	Perform exhaust system back-pressure test; determine needed action.	P-2			✓	214; 508	170
12.	Check and refill diesel exhaust fluid (DEF).	P-2	✓	✓	✓	84-85	14

13.	Test the operation of turbocharger/supercharger systems; determine needed action.	P-2			✓	189-198	38, 39
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E. Emissions Control Systems Diagnosis and Repair							
1.	Diagnose oil leaks, emissions, and drivability concerns caused by the positive crankcase ventilation (PCV) system; determine needed action.	P-3		✓	✓	499	163
2.	Inspect, test, service and /or replace positive crankcase ventilation (PCV) filter/breather, valve, tubes, orifices, and hoses; perform needed action.	P-2	✓	✓	✓	500	161-163
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		✓	✓	495	156-160
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		✓	✓	503	164; 165; 166
5.	Diagnose emissions and drivability concerns caused by the evaporative emissions control (EVAP) system; determine needed action.	P-2			✓	516	171-176

6.	Diagnose emission and drivability concerns caused by catalytic converter system; determine needed action.	P-2			✓	504; 508	167- 169
7.	Interpret diagnostic trouble codes (DTCs) and scan tool data related to the emissions control systems; determine needed action	P-3		✓	✓	496; 501; 504; 511; 519	177; 184; 187 188;