

A-8 ENGINE PERFORMANCE NATEF TASK LIST

Name _____ Date _____ Period _____		
<p>For every task in Engine Performance the following safety requirement must be strictly enforced: Comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.</p>		
Signature	Evaluation	A. General Engine Diagnosis <u>Evaluation Matrix:</u> 1 = Exposure/Observation 2 = Assisted in Performing 3 = Capable, Needs Practice 4 = Performed Satisfactorily 5 = Demonstrated Mastery
A. General: Engine Diagnosis		
		1. Identify and interpret engine performance concerns; determine necessary action.
		2. Research applicable vehicle and service information, vehicle service history, service precautions, and technical service bulletins.
		3. Diagnose abnormal engine noises or vibration concerns; determine necessary action.
		4. Diagnose the cause of excessive oil consumption coolant consumption, unusual exhaust color, odor, and sound; determine necessary action.
		5. Perform engine absolute (vacuum/boost) manifold pressure tests; determine necessary action.
		6. Perform cylinder power balance test; determine necessary action.
		7. Perform cylinder cranking and running compression tests; determine necessary action.
		8. Perform cylinder leakage test; determine necessary action.
		9. Diagnose engine mechanical, electrical, electronic, fuel, and ignition concerns; determine necessary action.
		10. Verify engine operating temperature; determine necessary action.
		11. Verify correct camshaft timing.
B. Computerized Controls Diagnosis and Repair		
		1. Retrieve and record diagnostic trouble codes, OBD monitor status, and freeze frame data; clear codes when applicable.
		2. Access and use service information to perform step-by-step (troubleshooting) diagnosis.
		3. Perform active tests of actuators using a scan tool; determine necessary action.
		4. Describe the importance of running all OBDII monitors for repair verification.

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 necessary action.
		2. Inspect and test crankshaft and camshaft position sensor(s); perform necessary action.
		3. Inspect, test, and/or replace ignition control module, powertrain/engine control module; reprogram as necessary.
		4. Remove and replace spark plugs; inspect secondary ignition components for wear and damage.
D. Fuel, Air Induction, Exhaust System Diagnosis and Repair		
		1. Check fuel for contaminants; determine necessary action
		2. Inspect and test fuel pumps and pump control systems for pressure, regulation, and volume; perform necessary action.
		3. Replace fuel filter(s).
		4. Inspect, service, or replace air filters, filter housings, and intake duct work.
		5. Inspect throttle body, air induction system, intake manifold and gaskets for vacuum leaks and/or unmetered air.
		6. Inspect and test fuel injectors
		7. Verify idle control operation.
		8. Inspect integrity of the exhaust manifold, exhaust pipes, muffler(s), catalytic converter(s), resonator(s), tail pipe(s), and heat shields; perform necessary action.
		9. Inspect condition of exhaust system hangers, brackets, clamps, and heat shields; repair or replace as needed.
		10. Perform exhaust system back-pressure test; determine necessary action.
		11. Check and refill diesel exhaust fluid (DEF).

E. Emissions Control Systems Diagnosis and Repair		
		1. Diagnose oil leaks, emissions, and drivability concerns caused by the positive crankcase ventilation (PCV) system; determine necessary action.
		2. Inspect, test, and service positive crankcase ventilation (PCV) filter/breather cap, valve, tubes, orifices, and hoses; perform necessary action.
		3. Diagnose emissions and drivability concerns caused by the exhaust gas recirculation (EGR) system; determine necessary action.
		4. Inspect, test, service, and replace components of the EGR system including tubing, exhaust passages, vacuum/pressure controls, filters, and hoses; perform necessary action.
		5. Inspect and test electrical/electronically-operated components and circuits of air injection systems; perform necessary action.
		6. Inspect and test catalytic converter efficiency.
		7. Inspect and test components and hoses of the evaporative emissions control system; perform necessary action.
		8. Interpret diagnostic trouble codes (DTCs) and scan tool data related to the emissions control systems; determine necessary action.
Engine Performance Task Priority Breakdown		
P-1 = 19 _____ No. Completed (95% - 18 Required for NATEF)		
P-2 = 12 _____ No. Completed (80% - 10 Required for NATEF)		
P-3 = 7 _____ No. Completed (50% - 4 Required for NATEF)		