

NATEF AUTOMOTIVE TASK LIST
AUT 221 - SUSPENSION & STEERING DIAGNOSIS

TERM: _____

SID: _____

INSTRUCTOR: _____

NAME: _____

**For every task in Suspension & Steering, 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.**

<u>Task Code</u>	<u>Task</u>	<u>Priority</u>
<u>A. General Suspension and Steering Systems Diagnosis</u>		
4.A.1	Research applicable vehicle and service information, vehicle service history, service precautions, and technical service bulletins.	P-1
4.A.2	Identify and interpret suspension and steering concern; determine necessary action.	P-1
<u>B. Steering Systems Diagnosis and Repair</u>		
4.B.1	Disable and enable supplemental restraint system (SRS)	P-1
4.B.2	Remove and replace steering wheel; center/time supplemental restraint system (SRS) coil (clock spring).	P-1
4.B.3	Diagnose steering column noises, looseness, and binding concerns (including tilt mechanisms); determine necessary action.	P-2
4.B.4	Diagnose power steering gear (non-rack and pinion) binding, uneven turning effort, looseness, hard steering, and noise concerns; determine necessary action.	P-2
4.B.5	Diagnose power steering gear (rack and pinion) binding, uneven turning effort, looseness, hard steering, and fluid leakage concerns; determine necessary action.	P-3
4.B.6	Inspect steering shaft universal-joint(s), flexible coupling(s), collapsible column, lock cylinder mechanism, and steering wheel; perform necessary action.	P-2
4.B.7	Remove and replace rack and pinion steering gear; inspect mounting bushings and brackets.	P-2
4.B.8	Inspect and replace rack and pinion steering gear inner tie rod ends (sockets) and bellows boots; replace as needed.	P-2
4.B.9	Determine proper power steering fluid types; inspect fluid level, and condition.	P-1
4.B.10	Flush, fill, and bleed power steering system	P-2
4.B.11	Inspect for power steering fluid leakage; determine necessary action.	P-1
4.B.12	Remove, inspect, replace, and adjust power steering pump belt.	P-1
4.B.13	Remove and reinstall power steering pump.	P-2
4.B.14	Remove and reinstall press fit power steering pump pulley; check pulley and belt alignment.	P-2

4.B.15	Inspect and replace power steering hoses and fittings.	P-2
4.B.16	Inspect and replace pitman arm, relay (centerlink/intermediate) rod, idler arm and mountings, and steering linkage damper.	P-2
4.B.17	Inspect, replace, and adjust tie rod ends (sockets), tie rod sleeves, and clamps.	P-1
4.B.18	Test and diagnose components of electronically controlled steering systems using a scan tool; determine necessary action.	P-3
4.B.19	Identify hybrid vehicle power steering system electrical circuits, service and safety precautions.	P-3
4.B.20	Inspect and test electric-power assist steering.	P-3

C. Suspension Systems Diagnosis and Repair

4.C.1	Diagnose short and long arm suspension system noises, body sway, and uneven riding height concerns; determine necessary action.	P-1
4.C.2	Diagnose strut suspension system noises, body sway, and uneven riding height concerns; determine necessary action.	P-1
4.C.3	Remove, inspect and install upper and lower control arms, bushings, shafts, and rebound bumpers.	P-3
4.C.4	Inspect, remove and install strut rods and bushings.	P-3
4.C.5	Remove, inspect, and install upper and/or lower ball joints. (With or without wear indicator)	P-2
4.C.6	Remove, inspect, and install steering knuckle assemblies.	P-3
4.C.7	Remove, inspect, and install short and long arm suspension system coil spring and spring insulators.	P-3
4.C.8	Inspect, remove and install torsion bars and mounts.	P-3
4.C.9	Remove, inspect and install stabilizer bar (sway bar) bushings, brackets, and links	P-3
4.C.10	Remove, inspect, and install strut cartridge or assembly, strut coil spring, insulators (silencers), and upper strut bearing mount.	P-3
4.C.11	Inspect, remove and install track bar, strut rods/radius arms, and related mounts and bushings.	P-3
4.C.12	Inspect rear suspension system leaf spring(s), bushings, center pins/bolts, and mounts.	P-1

D. Related Suspension and Steering Service

4.D.1.	Inspect, remove, and replace shock absorbers; inspect mounts and bushings.	P-1
4.D.2	Remove, inspect, and service or replace front and rear wheel bearings.	P-1
4.D.3	Describe the function of the power steering pressure switch.	P-3

F. Wheel and Tire Diagnosis and Repair

4.E.1	Inspect tire condition; identify tire wear patterns; check for correct tire size and application (load and speed ratings) and adjust air pressure; determine necessary action.	P-1
4.E.2	Diagnose wheel/tire vibration, shimmy, and noise; determine necessary action.	P1
4.E.3	Rotate tires according to manufacturer's recommendations.	P-2
4.E.4	Measure wheel, tire, axle, and hub runout; determine necessary action.	P-2
4.E.5	Diagnose tire pull problem; determine necessary action.	P-2
4.E.6	Dismount, inspect, and remount tire on wheel; balance wheel and tire assembly (static and dynamic).	P-1
4.E.7	Dismount, inspect, and remount tire on wheel equipped with tire pressure monitoring system sensor.	P-2
4.E.8	Inspect tire and wheel assembly for air loss; perform necessary action.	P-1
4.E.9	Repair tire using internal patch	P-1
4.E.10	Identify and test tire pressure monitoring system (indirect and direct) for operation; calibrate system; verify operation of instrument panel lamps.	P-2
4.E.11	Demonstrate knowledge of steps required to remove and replace sensors in a tire pressure monitoring system.	P-1