

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 | Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction. | P1 |
| 4.A.2 | Identify and interpret suspension and steering system concerns; determine necessary action. | P1 |
| 4.A.3 | Research applicable vehicle and service information, such as suspension and steering system operation, vehicle service history, service precautions, and technical service bulletins. | P1 |
| 4.A.4 | Locate and interpret vehicle and major component identification numbers | P1 |
| <u>B. Steering Systems Diagnosis and Repair</u> | | |
| 4.B.1 | Disable and enable supplemental restraint system (SRS) | P1 |
| 4.B.2 | Remove and replace steering wheel; center/time supplemental restraint system (SRS) coil (clock spring). | P1 |
| 4.B.3 | Diagnose steering column noises, looseness, and binding concerns (including tilt mechanisms); determine necessary action. | P2 |
| 4.B.4 | Diagnose power steering gear (non-rack and pinion) binding, uneven turning effort, looseness, hard steering, and noise concerns; determine necessary action. | P2 |
| 4.B.5 | Diagnose power steering gear (rack and pinion) binding, uneven turning effort, looseness, hard steering, and noise concerns; determine necessary action. | P2 |
| 4.B.6 | Inspect steering shaft universal-joint(s), flexible coupling(s), collapsible column, lock cylinder mechanism, and steering wheel; perform necessary action. | P2 |
| 4.B.7 | Adjust non-rack and pinion worm bearing preload and sector lash. | P3 |
| 4.B.8 | Remove and replace rack and pinion steering gear; inspect mounting bushings and brackets. | P2 |
| 4.B.9 | Inspect and replace rack and pinion steering gear inner tie rod ends (sockets) and bellows boots. | P2 |
| 4.B.10 | Determine proper power steering fluid types; inspect fluid level, and condition. | P1 |

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| 4.B.11 | Flush, fill, and bleed power steering system | P2 |
| 4.B.12 | Diagnose power steering fluid leakage; determine necessary action. | P2 |
| 4.B.13 | Remove, inspect, replace, and adjust power steering pump belt. | P1 |
| 4.B.14 | Remove and reinstall power steering pump. | P2 |
| 4.B.15 | Remove and reinstall press fit power steering pump pulley; check pulley and belt alignment. | P2 |
| 4.B.16 | Inspect and replace power steering hoses and fittings. | P2 |
| 4.B.17 | Inspect and replace pitman arm, relay (centerlink/intermediate) rod, idler arm and mountings, and steering linkage damper. | P2 |
| 4.B.18 | Inspect, replace, and adjust tie rod ends (sockets), tie rod sleeves, and clamps. | P1 |
| 4.B.19 | Test and diagnose components of electronically controlled steering systems using a scan tool; determine necessary action. | P3 |
| 4.B.20 | Inspect and test electric-power assist steering. | P3 |
| 4.B.21 | Identify hybrid vehicle power steering system electrical circuits, service and safety precautions. | P3 |

C. Suspension Systems Diagnosis and Repair

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| 4.C.1 | Diagnose short and long arm suspension system noises, body sway, and uneven ride height concerns; determine necessary action. | P1 |
| 4.C.2 | Diagnose strut suspension system noises, body sway, and uneven concerns; determine necessary action. | P1 |
| 4.C.3 | Remove, inspect and install upper and lower control arms, bushings, shafts, and rebound bumpers. | P3 |
| 4.C.4 | Remove, inspect, and install strut rods and bushings. | P2 |
| 4.C.5 | Remove, inspect, and install upper and/or lower ball joints. | P1 |
| 4.C.6 | Remove, inspect, and install steering knuckle assemblies. | P2 |
| 4.C.7 | Remove, inspect, and install short and long arm suspension system coil spring and spring insulators. | P3 |
| 4.C.8 | Remove, inspect, install, and adjust suspension system torsion bars; inspect mounts. | P3 |
| 4.C.9 | Remove, inspect and install stabilizer bar bushings, brackets, and links | P2 |
| 4.C.10 | Remove, inspect, and install strut cartridge or assembly, strut coil spring, insulators (silencers), and upper strut bearing mount. | P1 |
| 4.C.11 | Remove, inspect ,and install leaf springs, leaf spring insulators (silencers), shackles, brackets, bushings, and mounts. | P3 |

D. Related Suspension and Steering Service

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| 4.D.1 | Inspect, remove and replace shock absorbers. | P1 |
| 4.D.2 | Remove, inspect and service or replace front and rear wheel bearings. | P1 |
| 4.D.3 | Test and diagnose components of electronically controlled suspension systems using a scan tool; determine necessary action. | P3 |
| 4.D.4 | Diagnose, inspect, adjust, repair or replace components of electronically controlled Steering systems (including sensors, switches, and actuators); initialize system as required. | P3 |
| 4.D.5 | Describe the function of the idle speed compensation switch. | P3 |
| 4.D.6 | Lubricate suspension and steering systems. | P2 |

F. Wheel and Tire Diagnosis and Repair

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| 4.F.1 | Diagnose tire wear patterns; determine necessary action. | P2 |
| 4.F.2 | Inspect tires; check and adjust air pressure. | P1 |
| 4.F.3 | Diagnose wheel/tire vibration, shimmy, and noise; determine necessary action. | P1 |
| 4.F.4 | Rotate tires according to manufacturer's recommendations. | P2 |
| 4.F.5 | Measure wheel, tire, axle, and hub runout; determine necessary action.4.E.6 | P3 |
| 4.F.6 | Diagnose tire pull (lead) problem; determine necessary action. | P1 |
| 4.F.7 | Balance wheel and tire assembly (static and dynamic) | P1 |
| 4.F.8 | Dismount, inspect, repair, and remount tire on wheel. | P2 |
| 4.F.9 | Dismount, inspect, and remount tire on wheel equipped with tire pressure sensor. | P3 |
| 4.F.10 | Reinstall wheel; torque lug nuts. | P1 |
| 4.F.11 | Inspect tire and wheel assembly for air loss; perform necessary action. | P1 |
| 4.F.12 | Repair tire using internal patch | P1 |
| 4.F.13 | Inspect, diagnose, and calibrate tire pressure monitoring system. | P3 |