

AER 0499 - Automotive Steering and Suspension

2013 NATEF JOB TASKS COMPLETION REQUIREMENT: **P1 - 95% P2 - 80% P3 - 50%**

Student Name: _____

DETAILED COURSE CONTENT

AUTOMOTIVE SUSPENSION AND STEERING TECHNICIAN

DEMONSTRATE PROFICIENCY IN SUSPENSION AND STEERING GENERAL:

SYSTEMS DIAGNOSIS - The student will be able to:

		P1	P2	P3	Level	Date	Textbook Ch CDX Task
IV-A-1	Research applicable vehicle and service information, vehicle service history, service precautions, and technical service bulletins.						27: C166

DEMONSTRATE PROFICIENCY IN STEERING

SYSTEMS DIAGNOSIS AND REPAIR - The student will be able to:

IV-B-1	Disable and enable supplemental restraint system (SRS).						28: C168
IV-B-2	Remove and replace steering wheel; center/time supplemental restraint system (SRS) coil (clock spring).						28: C169
IV-B-3	Diagnose steering column noises, looseness, and binding concerns (including tilt mechanisms); determine necessary action.						28: C170
IV-B-4	Diagnose power steering gear (non-rack and pinion) binding, uneven turning effort, looseness, hard steering, and noise concerns; determine necessary action.						28: C884
IV-B-5	Diagnose power steering gear (rack and pinion) binding, uneven turning effort, looseness, hard steering, and noise concerns; determine necessary action.						28: C880
IV-B-6	Inspect steering shaft universal-joint(s), flexible coupling(s), collapsible column, lock cylinder mechanism, and steering wheel; perform necessary action.						28: C173
IV-B-7	Remove and replace rack and pinion steering gear; inspect mounting bushings and brackets.						28: C882

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DEMONSTRATE PROFICIENCY IN STEERING SYSTEMS DIAGNOSIS AND REPAIR - continued

		P1	P2	P3	Level	Date	Textbook Ch CDX Task
IV-B-8	Inspect and replace rack and pinion steering gear inner tie rod ends (sockets) and bellows boots. replace as needed.						28: C883
IV-B-9	Determine proper power steering fluid type; inspect fluid level and condition.						28: C177
IV-B-10	Flush, fill, and bleed power steering system.						28: C178
IV-B-11	Inspect for power steering fluid leakage; determine necessary action.						28: C179
IV-B-12	Remove, inspect, replace, and adjust power steering pump drive belt.						28: C180
IV-B-13	Remove and reinstall power steering pump.						28: C181
IV-B-14	Remove and reinstall press fit power steering pump pulley; check pulley and belt alignment.						28: C699
IV-B-15	Inspect and replace power steering hoses and fittings.						28: C183
IV-B-16	Inspect and replace pitman arm, relay (centerlink/intermediate) rod, idler arm and mountings, and steering linkage damper.						28: C184
IV-B-17	Inspect, replace, and adjust tie rod ends (sockets), tie rod sleeves, and clamps.						28: C185
IV-B-18	Identify hybrid vehicle power steering system electrical circuits, service and safety precautions.						28: C551
IV-B-19	Inspect electric power assist steering.						28: C700

DEMONSTRATE PROFICIENCY IN SUSPENSION SYSTEMS

DIAGNOSIS AND REPAIR: - The student will be able to:

IV-C-1	Diagnose short and long arm suspension system noises, body sway, and uneven ride height concerns; determine necessary action.						29: C852
IV-C-2	Diagnose strut suspension system noises, body sway, and uneven ride height concerns; determine necessary action.						29: C853
IV-C-3	Inspect, remove and install upper and lower control arms, bushings, shafts, and rebound bumpers.						29: C790

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DEMONSTRATE PROFICIENCY IN SUSPENSION SYSTEMS

DIAGNOSIS AND REPAIR: - continued

		P1	P2	P3	Level	Date	Textbook Ch CDX Task
IV-C-4	Inspect, remove and install strut rods and bushings.						29: C791
IV-C-5	Inspect, remove and install upper and/or lower ball joints (with or without wear indicators).						29: C792
IV-C-6	Inspect, remove and install steering knuckle assemblies.						29: C192
IV-C-7	Inspect, remove and install short and long arm suspension system coil springs and spring insulators.						29: C193
IV-C-8	Inspect, remove and install torsion bars and mounts.						29: C194
IV-C-9	Inspect, remove and install front stabilizer bar (sway bar) bushings, brackets, and links.						29: C925
IV-C-10	Inspect, remove and install strut cartridge or assembly, strut coil spring, insulators (silencers), and upper strut bearing mount.						29: C794
IV-C-11	Inspect, remove and install track bar, strut rods/radius arms, and related mounts and bushings.						29: C934
IV-C-12	Inspect rear suspension system leaf spring(s), bushings, center pins/bolts, and mounts.						29: C854

DEMONSTRATE PROFICIENCY IN RELATED SUSPENSION AND STEERING

SERVICE – The student will be able to:

IV-D-1	Inspect, remove, and replace shock absorbers; inspect mounts and bushings.						29: C202
IV-D-2	Remove, inspect, and service or replace front and rear wheel bearings.						34: C203
IV-D-3	Describe the function of the power steering pressure switch.						28: C931

DEMONSTRATE PROFICIENCY IN WHEEL ALIGNMENT DIAGNOSIS,

ADJUSTMENT, AND REPAIR – The student will be able to:

		P1	P2	P3	Level	Date	Textbook Ch CDX Task
IV-E-1	Diagnose vehicle wander, drift, pull, hard steering, bump steer, memory steer, torque steer, and steering return concerns; determine necessary action.						29: C206
IV-E-2	Perform prealignment inspection and measure vehicle ride height; perform necessary action.						29: C939, C617
IV-E-3	Prepare vehicle for wheel alignment on the alignment machine; perform four-wheel alignment by checking and adjusting front and rear wheel caster, camber, and toe as required; center steering wheel.						29: C618
IV-E-4	Check toe-out-on-turns (turning radius); determine necessary action.						29: C213

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DEMONSTRATE PROFICIENCY IN WHEEL ALIGNMENT DIAGNOSIS, ADJUSTMENT, AND REPAIR – continued

		P1	P2	P3	Level	Date	Textbook Ch CDX Task
IV-E-5	Check SAI (steering axis inclination) and included angle; determine necessary action.						29: C214
IV-E-6	Check rear wheel thrust angle; determine necessary action.						29: C216
IV-E-7	Check for front wheel setback; determine necessary action.						29: C217
IV-E-8	Check front and/or rear cradle (subframe) alignment; determine necessary action.						29: C795
IV-E-9	Reset steering angle sensor						29: C940

DEMONSTRATE PROFICIENCY IN WHEEL AND TIRE DIAGNOSIS AND REPAIR – The student will be able to:

IV-F-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.						27: C619
IV-F-2	Diagnose wheel/tire vibration, shimmy, and noise; determine necessary action.						27: C855
IV-F-3	Rotate tires according to manufacturer's recommendations.						27: C222
IV-F-4	Measure wheel, tire, axle flange, and hub runout; determine necessary action.						27: C701
IV-F-5	Diagnose tire pull problems; determine necessary action.						27: C796
IV-F-6	Dismount, inspect, and remount tire on wheel; balance wheel and tire assembly (static and dynamic).						27: C620
IV-F-7	Dismount, inspect, and remount tire on wheel equipped with tire pressure monitoring system sensor.						27: C621
IV-F-8	Inspect tire and wheel assembly for air loss; perform necessary action.						27: C580
IV-F-9	Repair tire using internal patch.						27: C552
IV-F-10	Identify and test tire pressure monitoring system (indirect and direct) for operation; verify operation of instrument panel lamps.						27: C935
IV-F-11	Demonstrate knowledge of steps required to remove and replace sensors in a tire pressure monitoring system.						27: C936

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	P1	P2	P3
Tasks Completed	0	0	0
Total Tasks	22	22	11
% of Total Tasks	0	0	0