

2008 NATEF AUTOMOBILE STANDARDS CORRELATIONS

SUSPENSION AND STEERING

For every task in Suspension and 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.

A. General Suspension and Steering Systems Diagnosis	Student Edition	Technical Applications
1. Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction. (P-1)	HB-44	Job Sheet SS-1
2. Identify and interpret suspension and steering system concerns; determine necessary action. (P-1)	SS-585	Job Sheets SS-10, SS-11
3. Research applicable vehicle and service information, such as suspension and steering system operation, vehicle service history, service precautions, and technical service bulletins. (P-1)	HB-44, EP-372, SS-548, SS-592	Job Sheet HB-4
4. Locate and interpret vehicle and major component identification numbers. (P-1)	HB-44, EP-410 through EP411, SS-528	Job Sheets HB-1, HB-2
B. Steering Systems Diagnosis and Repair	Student Edition	Technical Applications
1. Disable and enable supplemental restraint system (SRS). (P-1)	SS-532	Job Sheet SS-12
2. Remove and replace steering wheel; center/time supplemental restraint system (SRS) coil (clock spring). (P-1)	SS-532, SS-546 through SS-547, EL-343	Job Sheet SS-13
3. Diagnose steering column noises, looseness, and binding concerns (including tilt mechanisms); determine necessary action. (P-2)	SS-532 through SS-533	Job Sheet SS-14
4. Diagnose power steering gear (non-rack and pinion) binding, uneven turning effort, looseness, hard steering, and noise concerns; determine necessary action. (P-2)	SS-533, SS-542 through SS-544	Job Sheet SS-10

B. Steering Systems Diagnosis and Repair (continued)	Student Edition	Technical Applications
5. Diagnose power steering gear (rack and pinion) binding, uneven turning effort, looseness, hard steering, and noise concerns; determine necessary action. (P-2)	SS-533, SS-542 through SS-544	Job Sheet SS-10
6. Inspect steering shaft universal-joint(s), flexible coupling(s), collapsible column, lock cylinder mechanism, and steering wheel; perform necessary action. (P-2)	SS-531 through SS-535	Job Sheet SS-17
7. Adjust non-rack and pinion worm bearing preload and sector lash. (P-3)	SS-542 through SS-544	Job Sheet SS-24
8. Remove and replace rack and pinion steering gear; inspect mounting bushings and brackets. (P-2)	SS-533 through SS-535	Job Sheet SS-15
9. Inspect and replace rack and pinion steering gear inner tie rod ends (sockets) and bellows boots. (P-2)	SS-533 through SS-535	Job Sheet SS-16
10. Determine proper power steering fluid type; inspect fluid levels and condition. (P-1)	SS-540 through SS-541	Job Sheet SS-21
11. Flush, fill, and bleed power steering system. (P-2)	SS-540 through SS-541	Job Sheet SS-22
12. Diagnose power steering fluid leakage; determine necessary action. (P-2)	SS-540 through SS-541	Job Sheet SS-23
13. Remove, inspect, replace, and adjust power steering pump belt. (P-1)	SS-539, BR-189	Job Sheets SS-10, SS-19
14. Remove and reinstall power steering pump. (P-2)	SS-539 through SS-540	Job Sheet SS-19
15. Remove and reinstall press fit power steering pump pulley; check pulley and belt alignment. (P-2)	SS-539 through SS-540	Job Sheet SS-18
16. Inspect and replace power steering hoses and fittings. (P-2)	SS-539 through SS-540	Job Sheet SS-20
17. Inspect and replace pitman arm, relay (centerlink/intermediate) rod, idler arm and mountings, and steering linkage damper. (P-2)	SS-551 through SS-552, SS-556, SS-558	Diagnostic Sheets SS-1, SS-2, SS-3, SS-4 Job Sheets SS-25, SS-26, SS-27, SS-28
18. Inspect, replace, and adjust tie rod ends (sockets), tie rod sleeves, and clamps. (P-1)	SS-551 through SS-552, SS-556, SS-558	Job Sheet SS-16

B. Steering Systems Diagnosis and Repair (continued)	Student Edition	Technical Applications
19. Test and diagnose components of electronically controlled steering systems using scan tool; determine necessary action. (P-3)	SS-535, SS-543	
20. Inspect and test electric power assist steering. (P-3)	SS-544 through SS-546	
21. Identify hybrid vehicle power steering system electrical circuits, service and safety precautions. (P-3)	SS-545, HB-104	
C. Suspension Systems Diagnosis and Repair	Student Edition	Technical Applications
1. Diagnose short and long arm suspension system noises, body sway, and uneven ride height concerns; determine necessary action. (P-1)	SS-513 through SS-514, SS-558, SS-589 through SS-590	Job Sheet SS-11
2. Diagnose strut suspension system noises, body sway, and uneven ride height concerns; determine necessary action. (P-1)	SS-564 through SS-568	Job Sheet SS-11
3. Remove, inspect, and install upper and lower control arms, bushings, shafts, and rebound bumpers. (P-2)	SS-556, SS-558, SS-564	Diagnostic Sheet SS-6 Job Sheet SS-32
4. Remove, inspect and install strut rods and bushings. (P-2)	SS-565 through SS-568	Diagnostic Sheet SS-6 Job Sheet SS-32
5. Remove, inspect, and install upper and/or lower ball joints. (P-1)	SS-558 through SS-560	Job Sheet SS-32
6. Remove, inspect, and install steering knuckle assemblies. (P-2)	SS-564	Job Sheet SS-37
7. Remove, inspect, and install short and long arm suspension system coil springs and spring insulators. (P-3)	SS-552 through SS-554	Diagnostic Sheet SS-6 Job Sheet SS-32
8. Remove, inspect, install, and adjust suspension system torsion bars; inspect mounts. (P-3)	SS-556	Diagnostic Sheet SS-5 Job Sheet SS-33
9. Remove, inspect, and install stabilizer bar bushings, brackets, and links. (P-2)	SS-556	Job Sheet SS-30

C. Suspension Systems Diagnosis and Repair (continued)	Student Edition	Technical Applications
10. Remove, inspect, and install strut cartridge or assembly, strut coil spring, insulators (silencers), and upper strut bearing mount. (P-1)	SS-564 through SS-568	Diagnostic Sheet SS-7 Job Sheet SS-36
11. Remove, inspect, and install leaf springs, leaf spring insulators (silencers), shackles, brackets, bushings, and mounts. (P-3)	SS-570 through SS-571	Job Sheet SS-41
D. Related Suspension and Steering Service	Student Edition	Technical Applications
1. Inspect, remove, and replace shock absorbers. (P-1)	SS-554 through SS-556	Job Sheet SS-29
2. Remove, inspect, and service or replace front and rear wheel bearings. (P-1)	SS-560 through SS-561	Job Sheets SS-34, SS-35
3. Test and diagnose components of electronically controlled suspension systems using a scan tool; determine necessary action. (P-3)	SS-562	
4. Diagnose, inspect, adjust, repair or replace components of electronically controlled steering systems (including sensors, switches, and actuators); initialize system as required. (P-3)	SS-544 through SS-547	
5. Describe the function of the idle speed compensation switch. (P-3)	EP-440	Job Sheet EP-32
6. Lubricate suspension and steering systems. (P-2)	SS-558	Job Sheet SS-31
E. Wheel Alignment Diagnosis, Adjustment, and Repair	Student Edition	Technical Applications
1. Diagnose vehicle wander, drift, pull, hard steering, bump steer, memory steer, torque steer, and steering return concerns; determine necessary action. (P-1)	SS-533, SS-584 through SS-591	Job Sheet SS-39
2. Perform prealignment inspection and measure vehicle ride height; perform necessary action. (P-1)	SS-563, SS-569, SS-570, SS-584 through SS-591	Job Sheets SS-40, SS-42
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. (P-1)	SS-577 through SS-583, SS-584 through SS-591	Job Sheet SS-42

E. Wheel Alignment Diagnosis, Adjustment, and Repair (continued)	Student Edition	Technical Applications
4. Check toe-out-on-turns (turning radius); determine necessary action. (P-2)	SS-584 through SS-591	Job Sheet SS-42
5. Check SAI (steering axis inclination) and included angle; determine necessary action. (P-2)	SS-580	Job Sheet SS-42
6. Check rear wheel thrust angle; determine necessary action. (P-1)	SS-583 through SS-587	Job Sheet SS-42
7. Check for front wheel setback; determine necessary action. (P-2)	SS-581	Job Sheet SS-42
8. Check front and/or rear cradle (subframe) alignment; determine necessary action. (P-3)	SS-581, SS-584 through SS-591	
F. Wheel and Tire Diagnosis and Repair	Student Edition	Technical Applications
1. Inspect tire condition; identify tire wear patterns; check and adjust air pressure; determine necessary action. (P-1)	SS-513 through SS-515	Job Sheets SS-2, SS-3
2. Diagnose wheel/tire vibration, shimmy, and noise; determine necessary action. (P-2)	SS-513 through SS-515, SS-584 through SS-585	Job Sheet SS-7
3. Rotate tires according to manufacturer's recommendations. (P-1)	SS-515	Job Sheet SS-4
4. Measure wheel, tire, axle flange, and hub runout; determine necessary action. (P-2)	SS-525 through SS-527	Job Sheet SS-9
5. Diagnose tire pull (lead) problems; determine necessary action. (P-2)	SS-513 through SS-515, SS-584 through SS-585	Job Sheet SS-39
6. Dismount, inspect, repair, and remount tire on wheel; balance wheel and tire assembly (static and dynamic). (P-1)	SS-521 through SS-525	Job Sheet SS-6
7. Dismount, inspect, and remount tire on wheel equipped with tire pressure monitoring system sensor. (P-2)	SS-521 through SS-525	Job Sheet SS-6
8. Reinstall wheel; torque lug nuts. (P-1)	SS-522 through SS-525	Job Sheet SS-5
9. Inspect tire and wheel assembly for air loss; perform necessary action. (P-1)	SS-513 through SS-515, SS-523	Job Sheet SS-6

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F. Wheel and Tire Diagnosis and Repair (<i>continued</i>)	Student Edition	Technical Applications
10. Repair tire using internal patch. (P-1)	SS-523	Job Sheet SS-6
11. Inspect, diagnose, and calibrate tire pressure monitoring system. (P-2)	SS-513 through SS-515	