North Carolina CTE

Automotive Service I (2016): Grades 9, 10, 11, 12

Adopted 2016

Understand Engine Service 1.00	**I-A-3.** Inspect engine assembly for fuel, oil, coolant, and other leaks; determine necessary action. I-A-3
	I-C-2. Inspect, replace, and adjust drive belts, tensioners, and pulleys; check pulley and belt alignment I-C-2
	I-C-4. Inspect and test coolant; drain and recover coolant; flush and refill cooling system with recommended coolant; bleed air as required. I-C-4
	ASE-A-11. Inspect and replace accessory belt driven water pumps. ASE-A-11
	ASE-A-3. Check for abnormal engine noises. ASE-A-3
Understand Automatic Transmission/Transaxle Service 2.00	**II-B-4.** Drain and replace fluid and filter(s). II-B-4
Understand Manual Drive Train & Axle Service 3.00	**III-A-2.** Drain and refill manual transmission/transaxle and final drive unit. III-A-2
	III-E-1. Clean and inspect differential housing; check for leaks; inspect housing vent. III-E-1
	III-E-3. Drain and refill differential housing. III-E-3
Understand Suspension & Steering Service 4.00	**IV-B-1.** Inspect rack and pinion steering gear inner tie rod ends (sockets) and bellows boots. IV-B-1
	IV-B-3. Flush, fill, and bleed power steering system. IV-B-3
	IV-B-4. Inspect for power steering fluid leakage; determine necessary action. IV-B-4
	IV-B-5. Remove, inspect, replace, and adjust power steering pump drive belt. IV-B-5
	IV-B-7. Inspect pitman arm, relay (centerlink/intermediate) rod, idler arm and mountings, and steering linkage damper. IV-B-7
	IV-B-8. Inspect tie rod ends (sockets), tie rod sleeves, and clamps. IV-B-8

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	IV-B-9. Inspect upper and lower control arms, bushings, and shafts. IV-B-9
	IV-B-10. Inspect and replace rebound and jounce bumpers. IV-B-10
	IV-B-11. Inspect track bar, strut rods/radius arms, and related mounts and bushings. IV-B-11
	IV-B-12. Inspect upper and lower ball joints (with or without wear indicators). IV-B-12
	IV-B-13. Inspect suspension system coil springs and spring insulators (silencers). IV-B-13
	IV-B-14. Inspect suspension system torsion bars and mounts. IV-B-14
	IV-B-15. Inspect and replace front stabilizer bar (sway bar) bushings, brackets, and links. IV-B-15
	IV-B-16. Inspect strut cartridge or assembly. IV-B-16
	IV-B-17. Inspect front strut bearing and mount. IV-B-17
	IV-B-18. Inspect rear suspension system lateral links/arms (track bars), control (trailing) arms. IV-B-18
	IV-B-19. Inspect rear suspension system leaf spring(s), spring insulators (silencers), shackles, brackets, bushings, center pins/bolts, and mounts. IV-B-19
	ASE-D-51. Diagnose wheel/tire vibration, shimmy, and noise concerns; determine needed repairs. ASE-D-51
	ASE-D-4. Identify power steering pump noises, vibration, and fluid leakage. ASE-D-4
Understand Brake Service 5.00	**V-B-3.** Inspect brake lines, flexible hoses, and fittings for leaks, dents, kinks, rust, cracks, bulging, wear, loose fittings and supports; determine necessary action. V-B-3
	V-B-5. Identify components of brake warning light system. V-B-5
	V-B-7. Test brake fluid for contamination. V-B-7
	V-D-10. Check brake pad wear indicator; determine necessary action. V-D-10
	V-F-3. Check parking brake operation and parking brake indicator light system operation; determine necessary action. V-F-3
Understand Ele Sy	**VI-A-2.** Demonstrate knowledge of electrical/electronic series, parallel, and series-parallel circuits using principles of electricity (Ohm's Law). VI-A-2

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	VI-A-3. Use wiring diagrams to trace electrical/electronic circuits. VI-A-3
	VI-A-9. Inspect and test fusible links, circuit breakers, and fuses; determine necessary action. VI-A-9
	VI-B-1. Perform battery state-of-charge test; determine necessary action. VI-B-1
	VI-B-2. Confirm proper battery capacity for vehicle application; perform battery capacity test; determine necessary action. VI-B-2
	VI-B-5. Perform slow/fast battery charge according to manufacturer's recommendations. VI-B-5
	VI-B-9. Identify hybrid vehicle auxiliary (12v) battery service, repair, and test procedures. VI-B-9
	VI-D-1. Perform charging system output test; determine necessary action. VI-D-1
	VI-D-2. Inspect, adjust, or replace generator (alternator) drive belts; check pulleys and tensioners for wear; check pulley and belt alignment. VI-D-2
	VI-D-3. Remove, inspect, and re-install generator (alternator). VI-D-3
	VI-E-2. Aim headlights. VI-E-2
Understand Heating & Air Conditioning Service 7.00	**VII-B-1.** Inspect and replace A/C compressor drive belts, pulleys, and tensioners; determine necessary action. VII-B-1
	VII-B-3. Inspect A/C condenser for airflow restrictions; determine necessary action. VII-B-3
	VII-D-1. Inspect A/C-heater ducts, doors, hoses, cabin filters, and outlets; perform necessary action. VII-D-1
	ASE-A-12. Confirm fan operation (both electrical and mechanical); inspect fan clutch, fan shroud, and air dams. ASE-A-12
Understand Engine Performance Service 8.00	**VIII-A-6.** Verify engine operating temperature. VIII-A-6
	VIII-C-1. Replace fuel filter(s). VIII-C-1
	VIII-D-1. Inspect, test, and service positive crankcase ventilation (PCV) filter/breather cap, valve, tubes, orifices, and hoses; perform necessary action. VIII-D-1
	ASE-A-14. Perform air induction/throttle body service. ASE-A-14
	:-A-3. Check for abnormal engine noises. ASE-A-3

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Preparing Vehicle for Customer 9.00	**ST-D-1.** Ensure vehicle is prepared to return to customer per school/company policy. (floor mats, steering wheel cover, etc.) ST-D-1
Personal Standards 10.00	**ST-E-1.** Reports to work daily on time; able to take directions and motivated to accomplish the task at hand. ST-E-1
	ST-E-2. Dresses appropriately and uses language and manners suitable for the workplace. ST-E-2
	ST-E-3. Maintains appropriate personal hygiene. ST-E-3
	ST-E-4. Meets and maintains employment eligibility criteria, such as drug/alcohol-free status, clean driving record, etc. ST-E-4
	ST-E-5. Demonstrates honesty, integrity, and reliability. ST-E-5
Work Habits/Ethic 11.00	**ST-F-1.** Complies with workplace policies/laws. ST-F-1
	ST-F-2. Contributes to the success of the team, assists others and requests help when needed. ST-F-2
	ST-F-3. Works well with all customers and coworkers. ST-F-3
	ST-F-4. Negotiates solutions to interpersonal and workplace conflicts. ST-F-4
	ST-F-5. Contributes ideas and initiative. ST-F-5
	ST-F-6. Follows directions ST-F-6
	ST-F-7. Communicates (written and verbal) effectively with customers and coworkers. ST-F-7
	ST-F-8. Reads and interprets workplace documents; writes clearly and concisely. ST-F-8
	ST-F-9. Analyzes and resolves problems that arise in completing assigned tasks. ST-F-9
	ST-F-10. Organizes and implements a productive plan of work. ST-F-10
	ST-F-11. Uses scientific, technical, engineering and mathematics principles and reasoning to accomplish assigned tasks. ST-F-11
	ST-F-12. Identifies and address the needs of all customers, providing helpful, courteous and knowledgeable service and advice as needed. ST-F-12