North Carolina CTE

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

Adopted 2016

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| **Understand Engine Service** 1.00 | **I-A-4.** Install engine covers using gaskets, seals, and sealers as required. I-A-4 |
| | **I-A-6.** Perform common fastener and thread repair, to include: remove broken bolt, restore internal and external threads, and repair internal threads with thread insert. I-A-6 |
| | **I-C-3.** Remove, inspect, and replace thermostat and gasket/seal. I-C-3 |
| **Understand Automatic Transmission/Transaxle Service** 2.00 | **II-B-1.** Inspect, adjust, and replace external manual valve shift linkage, transmission range sensor/switch, and park/neutral position switch. II-B-1 |
| **Understand Manual Drive Train & Axle Service** 3.00 | **ASE-C-3.** Inspect, adjust, and replace transmission/transaxle external shifter assembly, shift linkages, brackets, bushings/grommets, pivots, and levers. ASE-C-3 |
| | **ASE-C-4.** Inspect and replace external seals. ASE-C-4 |
| | **ASE-C-8.** Inspect, service, and replace drive shaft center support bearings ASE-C-8 |
| | **ASE-C-14.** Inspect, adjust, and repair transfer case manual shifting mechanisms, bushings, mounts, levers, and brackets. ASE-C-14 |
| **Understand Suspension & Steering Service** 4.00 | **IV-B-6.** Inspect and replace power steering hoses and fittings. IV-B-6 |
| | **IV-B-20.** Inspect, remove, and replace shock absorbers; inspect mounts and bushings. IV-B-20 |
| | **IV-B-23.** Describe the function of the power steering pressure switch. IV-B-23 |
| | **IV-D-3.** Dismount, inspect, and remount tire on wheel; balance wheel and tire assembly (static and dynamic). IV-D-3 |
| | **IV-D-4.** Dismount, inspect, and remount tire on wheel equipped with tire pressure monitoring system sensor. IV-D-4 |

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| | **IV-D-6.** Repair tire using internal patch. IV-D-6 |
| | **IV-D-7.** Identify and test tire pressure monitoring systems (indirect and direct) for operation; verify operation of instrument panel lamps. IV-D-7 |
| | **IV-D-8.** Demonstrate knowledge of steps required to remove and replace sensors in a tire pressure monitoring system. IV-D-8 |
| | **ASE-D-5.** Remove and replace power steering pump; inspect pump mounting and attaching brackets; remove and replace power steering pump pulley; transfer related components. ASE-D-5 |
| **Understand Brake Service** 5.00 | **V-A-2.** Describe procedure for performing a road test to check brake system operation, including an anti-lock brake system (ABS). V-A-2 |
| | **V-B-2.** Check master cylinder for external leaks and proper operation. V-B-2 |
| | **V-B-6.** Bleed and/or flush brake system. V-B-6 |
| | **V-C-1.** Remove, clean, inspect, and measure brake drum diameter; determine necessary action. V-C-1 |
| | **V-C-2.** Refinish brake drum and measure final drum diameter; compare with specifications. V-C-2 |
| | **V-C-3.** Remove, clean, and inspect brake shoes, springs, pins, clips, levers, adjusters/self-adjusters, other related brake hardware, and backing support plates; lubricate and reassemble. V-C-3 |
| | **V-C-4.** Inspect wheel cylinders for leaks and proper operation; remove and replace as needed. V-C-4 |
| | **V-C-5.** Pre-adjust brake shoes and parking brake; install brake drums or drum/hub assemblies and wheel bearings; make final checks and adjustments. V-C-5 |
| | **V-D-1.** Remove and clean caliper assembly; inspect for leaks and damage/wear to caliper housing; determine necessary action. V-D-1 |
| | **V-D-2.** Clean and inspect caliper mounting and slides/pins for proper operation, wear, and damage; determine necessary action. V-D-2 |
| | **V-D-3.** Remove, inspect, and replace pads and retaining hardware; determine necessary action. V-D-3 |
| | **V-D-4.** Lubricate and reinstall caliper, pads, and related hardware; seat pads and inspect for leaks. V-D-4 |
| | **-5.** Clean and inspect rotor, measure rotor thickness, thickness variation, and lateral runout; determine necessary action. V-D-5 |

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| | **V-D-6.** Remove and reinstall rotor. V-D-6 |
| | **V-D-7.** Refinish rotor on vehicle; measure final rotor thickness and compare with specifications. V-D-7 |
| | **V-D-8.** Refinish rotor off vehicle; measure final rotor thickness and compare with specifications. V-D-8 |
| | **V-D-9.** Retract and re-adjust caliper piston on an integral parking brake system. V-D-9 |
| | **V-D-11.** Describe importance of operating vehicle to burnish/break-in replacement brake pads according to manufacturer's recommendations. V-D-11 |
| | **V-F-1.** Remove, clean, inspect, repack, and install wheel bearings; replace seals; install hub and adjust bearings. V-F-1 |
| | **ASE-E-1.** Check for poor stopping, pulling, dragging, noises, high or low pedal, and hard or spongy pedal. ASE-E-1 |
| | **ASE-E-32.** Inspect the vacuum-type power booster unit for operation, and vacuum leaks; inspect the check valve for proper operation. ASE-E-32 |
| | **ASE-E-33.** Identify operation of electric-hydraulic assist system; check system for leaks and operation. ASE-E-33 |
| | **ASE-E-34.** Identify operation of hydro-boost assist system; check system for leaks and operation. ASE-E-34 |
| **Understand Electrical/Electronic System Service** 6.00 | **VI-A-10.** Perform solder repair of electrical wiring. VI-A-10 |
| | **VI-A-11.** Replace electrical connectors and terminal ends. VI-A-11 |
| | **VI-C-1.** Perform starter current draw test; determine necessary action. VI-C-1 |
| | **VI-C-3.** Inspect and test starter relays and solenoids; determine necessary action. VI-C-3 |
| | **VI-C-4.** Remove and install starter in a vehicle. VI-C-4 |
| | **VI-C-5.** Inspect and test switches, connectors, and wires of starter control circuits; determine necessary action. VI-C-5 |
| | **VI-F-2.** Remove and reinstall door panel. VI-F-2 |
| | **ASE-F-21.** Verify horn operation; determine needed repairs ASE-F-21 |
| **Un Air Service** 7.00 | **C-1.** Inspect engine cooling and heater systems hoses; perform necessary action. VII-C-1 |

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| **Understand Engine Performance Service** 8.00 | **VIII-A-7.** | **Remove and replace spark plugs; inspect secondary ignition components for wear and damage.** VIII-A-7 |
| | **VIII-C-4.** | **Inspect condition of exhaust system hangers, brackets, clamps, and heat shields; repair or replace as needed.** VIII-C-4 |
| **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 |
| | **F-11.** | **Uses scientific, technical, engineering and mathematics principles and reasoning to accomplish assigned tasks.** ST-F-11 |

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**ST-F-12.** **Identifies and address the needs of all customers, providing helpful, courteous and knowledgeable service and advice as needed.** ST-F-12