

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

Adopted 2016

Understand Engine Service 1.00

I-A-5. Remove and replace timing belt; verify correct camshaft timing. I-A-5

I-B-1. Adjust valves (mechanical or hydraulic lifters). I-B-1

Understand Automatic Transmission/Transaxle Service 2.00

II-B-2. Inspect for leakage at external seals, gaskets, and bushings. II-B-2

II-B-3. Inspect replace and align power train mounts. II-B-3

II-C-1. Describe the operational characteristics of a continuously variable transmission (CVT). II-C-1

II-C-2. Describe the operational characteristics of a hybrid vehicle drive train. II-C-2

Understand Manual Drive Train & Axle Service 3.00

III-C-1. Describe the operational characteristics of an electronically-controlled manual transmission/transaxle. III-C-1

III-D-1. Inspect, remove, and replace front wheel drive (FWD) bearings, hubs, and seals. III-D-1

III-D-2. Inspect, service, and replace shafts, yokes, boots, and universal/CV joints. (Phasing) III-D-2

III-E-1. Inspect and replace drive axle wheel studs. III-E-1

III-F-1. Inspect front-wheel bearings and locking hubs. III-F-1

III-F-2. Check for leaks at drive assembly seals; check vents; check lube level. III-F-2

ASE-C-6. Road test the vehicle to verify drive train noises and vibration. ASE-C-6

Understand Suspension & Steering Service 4.00

IV-A-2. Disable and enable supplemental restraint system (SRS). IV-A-2

IV-B-21. Inspect electric power-assisted steering. IV-B-21

IV-C-1. Perform prealignment inspection and measure vehicle ride height; determine necessary action. [IV-C-1](#)

ASE-D-11. Inspect and replace steering linkage damper(s). [ASE-D-11](#)

ASE-D-39. Identify alignment-related symptoms such as vehicle wander, drift, and pull. [ASE-D-39](#)

ASE-D-41. Measure front and rear wheel camber; adjust as needed. [ASE-D-41](#)

ASE-D-42. Measure caster; adjust as needed. [ASE-D-42](#)

ASE-D-43. Measure front wheel toe; adjust as needed. [ASE-D-43](#)

ASE-D-44. Center the steering wheel using mechanical methods. [ASE-D-44](#)

ASE-D-45. Measure rear wheel toe; adjust as needed. [ASE-D-45](#)

ASE-D-46. Measure thrust angle. [ASE-D-46](#)

ASE-D-47. Calibrate steering angle sensor [ASE-D-47](#)

ASE-D-17. Inspect non-independent front axle assembly for damage and misalignment. [ASE-D-17](#)

ASE-D-33. Inspect non-independent rear axle assembly for damage and misalignment. [ASE-D-33](#)

Understand Brake Service [5.00](#)

V-B-1. Measure brake pedal height, travel, and free play (as applicable); determine necessary action. [V-B-1](#)

V-E-1. Check brake pedal travel with, and without, engine running to verify proper power booster operation. [V-E-1](#)

V-E-2. Check vacuum supply (manifold or auxiliary pump) to vacuum-type power booster. [V-E-2](#)

V-F-2. Check parking brake cables and components for wear, binding, and corrosion; clean, lubricate, adjust or replace as needed. [V-F-2](#)

V-F-5. Replace wheel bearing and race. [V-F-5](#)

V-F-6. Inspect and replace wheel studs. [V-F-6](#)

V-G-1. Identify traction control/vehicle stability control system components. [V-G-1](#)

V-G-2. Describe the operation of a regenerative braking system. [V-G-2](#)

Understand Electrical/Electronic

VI-A-4. Demonstrate proper use of a digital multimeter (DMM) when measuring source voltage, voltage drop (including grounds), current flow, and

System Service 6.00

resistance. VI-A-4

VI-A-5. Demonstrate knowledge of the causes and effects from shorts, grounds, opens, and resistance problems in electrical/electronic circuits. VI-A-5

VI-A-6. Check operation of electrical circuits with a test light. VI-A-6

VI-A-7. Check operation of electrical circuits with fused jumper wires. VI-A-7

VI-A-8. Measure key-off battery drain (parasitic draw). VI-A-8

VI-B-8. Identify electronic modules, security systems, radios, and other accessories that require reinitialization or code entry after reconnecting vehicle battery. VI-B-8

VI-C-2. Perform starter circuit voltage drop tests; determine necessary action. VI-C-2

VI-D-4. Perform charging circuit voltage drop tests; determine necessary action. VI-D-4

VI-F-1. Disable and enable airbag system for vehicle service; verify indicator lamp operation. VI-F-1

VI-F-3. Describe the operation of keyless entry/remote-start systems. VI-F-3

Understand Heating & Air Conditioning Service 7.00

VII-D-2. Identify the source of A/C system odors. VII-D-2

Understand Engine Performance Service 8.00

VIII-A-2. Perform engine absolute (vacuum/boost) manifold pressure tests; determine necessary action VIII-A-2

VIII-A-3. Perform cylinder power balance test; determine necessary action. VIII-A-3

VIII-A-4. Perform cylinder cranking and running compression tests; determine necessary action. VIII-A-4

VIII-A-5. Perform cylinder leakage test; determine necessary action. VIII-A-5

VIII-B-1. Retrieve and record diagnostic trouble codes, OBD monitor status, and freeze frame data; clear codes when applicable. VIII-B-1

VIII-B-2. Describe the importance of operating all OBDII monitors for repair verification. VIII-B-2

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