

# Automotive Technology 6<sup>th</sup> Edition

## Chapter 115 – Tire and Wheel Service

### Lesson Plan



#### **CHAPTER SUMMARY:**

1. Tire service and proper inflation, nitrogen inflation, and tire inspection
  2. Wheel removal/installation, tire rotation, radial runout, and lateral runout
  3. Tire replacement, tire balancing, wheel weights, wheel/tire balancers, and tire repair
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#### **OBJECTIVES:**

1. State the importance of proper tire inflation.
  2. Describe tire inspection.
  3. Describe the correct lug nut removal, tightening procedure, and torque for wheel installation.
  4. State the purpose of tire rotation.
  5. Discuss radial runout and lateral runout.
  6. List the steps for replacing a tire.
  7. Discuss how to balance wheel and tire assembly (static and dynamic).
  8. Discuss how to repair tires using internal patch.
  9. This chapter will help prepare for ASE Suspension and Steering (A4) certification content area “E” (Wheel and Tire Diagnosis and Repair).
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#### **RESOURCES:** (All resources may be found at <http://www.jameshalderman.com>)

1. **Task Sheet ASE (A4-F-1) P-1, (A4-F-8) P-1:** Tire Inspection and Air Loss
  2. **Task Sheet ASE (A4-F-2) P-2, (A4-F5) P-1:** Tire Vibration and Pull Diagnosis
  3. **Task Sheet ASE (A4-F-3) P-1:** Tire Rotation
  4. **Task Sheet ASE (A4-F-4) P-2:** Tire, Wheel, Axle, and Hub Runout
  5. **Task Sheet ASE (A4-F-6) P-1:** Tire Replacement
  6. **Task Sheet ASE (A4-F-9) P-1:** Tire Repair
  7. Chapter PowerPoint
  8. Chapter Crossword Puzzle and Word Search
  9. Animations: Replace Wheel Stud, Tighten Lug Nuts, Tire Rotation, and Tire Rotation - FWD Vehicle
  10. Animations: Remove and Replace Tire & Wheel and Measure Tire Radial Runout
  11. Videos: See list at the end of the lesson plan.
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#### **ACTIVITIES:**

1. **Task Sheet ASE (A4-F-1) P-1, (A4-F-8) P-1:** Have students complete Tire Inspection and Air Loss Task Sheet.
  2. **Task Sheet ASE (A4-F-2) P-2, (A4-F5) P-1:** Have students complete Tire Vibration and Pull Diagnosis Task Sheet.
  3. **Task Sheet ASE (A4-F-3) P-1:** Have students complete Tire Rotation Task Sheet.
  4. **Task Sheet ASE (A4-F-4) P-2:** Tire, Wheel, Axle, and Hub Runout Task Sheet.
  5. **Task Sheet ASE (A4-F-6) P-1:** Have students complete Tire Replacement Task Sheet.
  6. **Task Sheet ASE (A4-F-9) P-1:** Have students complete Tire Repair Task Sheet.
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#### **ASSIGNMENTS:**

1. Chapter crossword and word search puzzles.
  2. Complete end of chapter 10 question quiz.
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#### **CLASS DISCUSSION:**

1. Review and group discussion chapter Frequently Asked Questions and Tech Tips sections.
  2. Review and group discussion of the five (5) chapter Review Questions.
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#### **NOTES AND EVALUATION:**

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**Videos:** (at <http://www.jameshalderman.com>)

- Remove Rusted Wheel Hub (time 3:56)
- Replace Wheel Stud (time 2:09)
- Tire balance (time 3:39)
- Tire balancer (time 1:45)
- Tire inspection and service (time 9:56)
- How to plug a tire (time 6:23)
- Torque lug nuts (time 2:42)
- Vibration diagnosis (time 19:07)
- Manual tire changer (time 4:52)
- Tire balancing (time 10:51)
- Tire balance (time 4:39)
- Tire rotation (time 5:29)
- Wheel, tire, hub runout (time 9:43)
- Tire dismount and mount (time 6:20)
- Tire patch (time 16:30)
- TPMS sensor replacement (time 1:21)
- How to repair a flat tire with sidewall damage (time 01:06:50)
- TPMS Sensor Replacement (time 3:15)