

# Automotive Steering, Suspension & Alignment

## Chapter 20 – Alignment Diagnosis and Service

### Lesson Plan



#### **CHAPTER SUMMARY:**

1. Purpose of an Alignment, Prealignment Correction Techniques, and Prealignment Checks
2. Lead/Pull Memory Steer, Torque Steer, Alignment Specifications, and Alignment Setup Procedures
3. Measuring Camber, Caster, SAI, Toe and TOOT, and Specifications Versus Alignment Readings
4. Checking for Bent Struts, Spindles, or Control Arms
5. Checking Frame Alignment of Front-Wheel-Drive Vehicles, and Types of Alignment
6. Adjustment Rear Camber and Guidelines for Adjusting Front Camber/SAI and Included Angle
7. Front Camber/Caster Adjustment Methods, Adjusting Front Camber/Caster, and Setting Toe
8. Centering the Steering Wheel and Tolerance Adjustment Procedure
9. Aligning Electronic-Suspension Vehicles and Aligning Modified Vehicles
10. Hidden Structural Damage Diagnosis and Reset Steering Angle Sensor (SAS)

---

#### **OBJECTIVES:**



1. List the various checks that should be performed before aligning a vehicle.
2. Explain the diagnosis of lead, memory steer, and torque steer.
3. Describe alignment specifications and setup procedures.
4. Discuss how to measure camber, caster, SAI, toe, and TOOT.
5. Describe how to perform a prealignment inspection.
6. List the types of alignments.
7. Explain how to adjust front camber and caster and rear camber.
8. Describe how to set the toe, center the steering wheel, and adjust tolerance.
9. Explain the method of aligning electronic-suspension vehicles and modified vehicles.
10. Describe how to diagnose hidden structural damage.
11. Describe how to reset the steering angle sensor.

---

#### **RESOURCES:** ([All resources may be found at jameshalderman.com](http://www.jameshalderman.com))



1. Task Sheet: Pre-Alignment Inspection
  2. Task Sheet: Alignment Angle Readings
  3. Task Sheet: Four-Wheel Alignment
  4. Task Sheet: TOOT and SAI
  5. Task Sheet: Diagnostic Alignment Angles
  6. Task Sheet: Reset Steering Angle Sensor
  7. Chapter PowerPoint
  8. [Crossword and Word Search Puzzles \(A4\)](#)
  9. [Videos: \(A4\) Suspension and Steering](#)
  10. [Animations: \(A4\) Suspension and Steering](#)
-

# Automotive Steering, Suspension & Alignment

## Chapter 20 – Alignment Diagnosis and Service

### Lesson Plan



#### **ACTIVITIES:**

1. Task Sheet: Pre-Alignment Inspection
  2. Task Sheet: Alignment Angle Readings
  3. Task Sheet: Four-Wheel Alignment
  4. Task Sheet: TOOT and SAI
  5. Task Sheet: Diagnostic Alignment Angles
  6. Task Sheet: Reset Steering Angle Sensor
- 



#### **ASSIGNMENTS:**

1. Chapter crossword and word search puzzles from the website.
  2. Complete end of chapter quiz from the textbook.
  3. Complete multiple choice and short answer quizzes downloaded from the website.
- 



#### **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.
- 



#### **NOTES AND EVALUATION:**

---