

## Uniform Procedures For Collision Repair

# WA11–Wheel Alignment, Rear

© Copyright 1998 Inter-Industry Conference On Auto Collision Repair

v.2.3



## 1. Description

This procedure describes methods for checking and restoring rear-wheel alignment. Inspection and evaluation requirements are also included.



## 2. Purpose

The purpose of this procedure is to provide industry-accepted requirements for performing high-quality rear-wheel alignments. This procedure is intended for use by professionals who are qualified through training and experience.



### **3. Referenced Documents**

The following documents are considered part of this procedure by reference.

#### **3.1 Procedures**

- PS01 Personnel Safety
- WA01 Wheel Alignment, Front

#### **3.2 Other Information**

- Equipment-specific information
- Vehicle-specific repair information



## 4. Equipment And Material Requirements

### 4.1 Wheel Alignment Equipment

The rear-wheel alignment equipment must be capable of making these measurements:

- camber**
- toe**
- turning radius** (for vehicles with four-wheel steering)



Wheel alignment equipment measurements must be repeatable and accurate to within  $\pm 0.1^\circ$ .



## 5. Damage Analysis

### 5.1 Wheel Alignment Conditions

A rear-wheel alignment is necessary following a collision if any of these conditions exist:

- damaged rear suspension parts or mounting locations
- damage that caused a camber or toe change in the rear suspension
- side impact that caused a change in the wheelbase measurement
- an adjustable rear suspension part was removed or loosened for access
- worn steering or suspension parts are removed and replaced during repair procedures

Perform a front-wheel alignment after alignment of the rear wheels. Follow the vehicle maker's recommendations.

If any abnormal tire wear is visible, alignment should be checked.

Any steering or handling complaints should be thoroughly checked as a possible out-of-alignment condition.



## 6. Personnel Safety

### 6.1 General Safety

General safety information is in **PS01**.

### 6.2 Equipment Setup Safety

To prevent injury during equipment setup:

- Follow the equipment maker's safety requirements.
- Ensure the vehicle is stable and secure before installing the alignment system.



## 7. Environmental Safety

Does not apply.



## 8. Vehicle Protection

### 8.1 Adjacent Panels

Protect adjacent panels when making adjustments.



## 9. Repair Procedure

### 9.1 Pre-Alignment Conditions

These conditions must be met before performing a wheel alignment:

- The vehicle is level.
- Ride height** is within specifications.
- The tires are a matched set with the correct size and air pressure.
- The fuel tank is full.
- There is no added weight in the trunk or passenger compartment, unless required by the vehicle maker.
- Front seat is in rearward position.
- Both rear wheels are equal distance from vehicle centerline unless the vehicle maker specifies otherwise.
- No visible or measurable wear on the steering and suspension parts.
- Correct side-to-side and individual wheelbase measurements have been achieved.
- Non-driven, front-wheel bearings are properly adjusted.

### 9.2 Alignment Angles

To check and adjust the alignment angles:

- 1. Measure the alignment angles and compare to the vehicle maker's specifications.
- 2. Determine the required adjustments. If the readings indicate structural damage, make repairs. If the readings indicate bent or damaged parts, check the parts for damage. Replace parts as needed.
- 3. Make required adjustments, as necessary.
- 4. Inspect fasteners for damage. Replace any damaged fasteners or those required by the vehicle maker.



Ensure that side-to-side specifications are met. Use the vehicle maker's side-to-side tolerances, if listed. If not, use the following general side-to-side tolerances:

- camber  $\pm 1/2^\circ$
- toe  $\pm 1/16^\circ$

Calculate the **thrust angle** from the toe measurements, and ensure that the thrust angle specification is met. Use a thrust angle tolerance of  $\pm 1/4^\circ$ . Some vehicle makers specify a closer tolerance. Follow the vehicle maker's recommendations.

Verify that the alignment angles are correct.



## 10. Use Of Recycled (Salvage) Parts

Does not apply.



## 11. Inspection And Testing

### 11.1 Inspection After Alignment

Inspect the vehicle, following a rear-wheel alignment, for these conditions:

- mounting locations returned to original locations
- fasteners replaced as required by the vehicle maker
- correct fastener torque
- replacement of all bent or damaged parts

Road-test the vehicle, following the vehicle maker's recommendations, checking for any of these defects:

- pulling to one side
- difficulty keeping the vehicle traveling straight
- instability through turns
- steering wheel off center when vehicle is in motion
- vibration
- dogtracking**

Correct any defects.