

**Document ID# 1864724**  
**2004 Cadillac CTS**

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**Subject: Info - Wheel Alignment Specifications, Requirements and Recommendations for GM Vehicles #05-03-07-009A - (09/28/2006)**

**Models: 2007 and Prior GM Passenger Cars and Light Duty Trucks (Including Saturn Models)**

**2003-2007 HUMMER H2**

**2006-2007 HUMMER H3**

**2005-2007 Saab 9-7X**

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**This bulletin is being revised to include information regarding wheel alignment specifications. Please discard Corporate Bulletin Number 05-03-07-009 (Section 03 - Suspension).**

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The purpose of this bulletin is to provide retail and wholesale personnel with General Motors' specifications, requirements and recommendations for wheel alignment equipment and alignment procedures.

### **[Wheel Alignment Specifications](#)**

Technicians must refer to SI for the correct wheel alignment specifications for each vehicle. SI is the only source of GM wheel alignment specifications that is up-to-date throughout the year.

The wheel alignment specifications loaded in any wheel alignment machine by the equipment

manufacturer may be incorrect and/or outdated, even if the dealership subscribes to the manufacturer's update service. GM sends certain vendors a "one-time" CD with wheel alignment specifications for the new model year in early summer. Therefore, any changes to wheel alignment specifications *after* this CD is distributed may not be present in dealership wheel alignment machines.

Using incorrect and/or outdated specifications may result in unnecessary adjustments, irregular and/or premature tire wear and repeat customer concerns.

## Conditions Possibly Requiring a Wheel Alignment

- Lead/pull defined as "at a constant highway speed on a typical straight road, the amount of effort required at the steering wheel to maintain the vehicle's straight path."
- Steering wheel off-center (clockwise or counterclockwise)
- Unusual tire wear
- Other repairs that affect wheel alignment

## Alignment Equipment

Alignments must be performed with a quality alignment machine that will give accurate results when performing alignment checks. "External Reference" (image-based camera technology) is preferred.

## **Requirements**

- Computerized four wheel alignment system
- Computer capable of printing before and after alignment reports
- Computer capable of time and date stamp printout
- Racking system must have jacking capability
- Racking system must be capable of level to 1.6 mm (1/16 in)
- Appropriate wheel stops and safety certification
- Built-in turn plates and slip plates
- Wheel clamps capable of attaching to 20" or larger wheels
- Racking capable of accepting any GM passenger car or light duty truck
- Operator properly trained and ASE-certified (U.S. only) in wheel alignment

## **Recommendations**

Racking should have front and rear jacking capability.

## Equipment Maintenance and Calibration

Alignment machines must be regularly calibrated in order to give correct information. Most manufacturers recommend the following:

- Alignment machines with "internal reference" sensors should be checked (and calibrated, if necessary) every six months.
- Alignment machines with "external reference" (image-based camera technology) should be checked (and calibrated, if necessary) once a year.
- Racks must be kept level to within 1.6 mm (1/16 in).
- If any instrument that is part of the alignment machine is dropped or damaged in some way, check the calibration immediately.

Check with the manufacturer of your specific equipment for their recommended service/calibration schedule.

## Warranty Claim Documentation

**Important:** Failure to have proper documentation of the repair order may result in denial or chargeback of the warranty claim.

In order to properly document a warranty claim for alignment, the following must be completed:

- Details of the customer's concern or complaint are to be noted at the time of repair order write-up by recording the description of the customer's problem.
- The technician's description of the cause of the concern and the repairs performed must be written on all copies of the repair order.
- "Before" and "After" alignment settings are to be recorded on the repair order. An alignment machine printout of "Before" AND "After" settings with date/time stamp is to be attached to the repair order by dealers who have printout capable equipment.
- Documentation of alignment machine calibration within the last 12 months must be available for AVM (in Canada, DSM, for Saturn, DSSM) review upon request.
- Prior wholesale approval required for vehicles under 800 km (500 mi) or over 12,070 km (7,500 mi) (will now apply to Saturn retailers also). Refer to the GM Service Policies and Procedures Manual for complete warranty policy information.

## Alignment Process

When performing wheel alignment measurement and/or adjustment, the following steps should be taken:

### **Preliminary Steps**

1. Verify that the vehicle has a full tank of fuel (compensate as necessary).
2. Inspect the wheels and the tires for damage.
3. Inspect the tires for the proper inflation and irregular tire wear.
4. Inspect the wheel bearings for excessive play.
5. Inspect all suspension and steering parts for looseness, wear, or damage.
6. Inspect the steering wheel for excessive drag or poor return due to stiff or rusted linkage or suspension components.
7. Inspect the vehicle trim height.
8. Compensate for frame angle on targeted vehicles (refer to Wheel Alignment Specifications in SI).

Satisfactory vehicle operation may occur over a wide range of alignment angles. However, if the wheel alignment angles are not within the range of specifications, adjust the wheel alignment to the specifications. Refer to Wheel Alignment Specifications in SI. Give consideration to excess loads, such as tool boxes, sample cases, etc. Follow the alignment equipment manufacturer's instructions.

### **Measure/Adjust**

**Notice:** Prior to making any adjustments to wheel alignment on a vehicle, technicians must verify that the wheel alignment specifications loaded into the wheel alignment machine are up-to-date by comparing these to the wheel alignment specifications for the appropriate model and model year in SI. Using incorrect and/or outdated specifications may result in unnecessary adjustments, irregular and/or premature tire wear and repeat customer concerns.

**Important:** When performing adjustments to vehicles requiring a 4-wheel alignment, set the rear wheel alignment angles first in order to obtain proper front wheel alignment angles.

Perform the following steps in order to measure the front and rear alignment angles:

1. Install the alignment equipment according to the manufacturer's instructions.
2. Jounce the front and the rear bumpers 3 times prior to checking the wheel alignment.
3. Measure the alignment angles and record the readings.

Adjust alignment angles to vehicle specification, if necessary. Refer to Wheel Alignment Specifications in SI.

Test drive the vehicle to ensure proper repair.

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



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